Drug and Cosmetic Industry

May 1956 Vol. 78 No. 5

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"We are making these capsules in a full line of decorator's colors."

Keeping Posted

Half Million Squibb Theft

Three employees of E. R. Squibb & Sons Division Olin-Mathieson Chemical Corporation have been charged with systematic theft of $500,000 worth of drugs over a five-year period from the Squibb plant at 25 Columbia Heights, Brooklyn, N. Y. Also taken into custody are six men accused as receivers of stolen goods.

With shortages in inventories each year, Squibb executives appealed to the Brooklyn District Attorney for help. Twenty plainclothes men were assigned to keep the building under scrutiny. At night on April 26, a rope being used to lower jars of vitamins, sedatives, and other expensive pharmaceuticals, broke. The detectives arrested the employee who was thought to have been lowering them, and a round-up of other suspects followed.

The three Squibb employees arrested are Paul Guiery, John W. Helps Jr., and John Gruppone, all of Brooklyn.

Those arrested as receivers are: David Reiss and Irving Sheffein, partners in Rutland Sales Company, drug wholesaler; Felix Di Geronimo, pharmacist's clerk; Sheldon L. Sirota, college student and drug store clerk; Joseph Berson, owner of B & B Drug Company, Flushing; David Cohen, of the CO Pharmacy. All but Berson are from Brooklyn.

Mennen Doubles Business

A report, stating that the Mennen Company has more than doubled its business volume since 1950, and is now far in the lead as the world's largest producer of men's grooming products, was revealed at the annual stockholders meeting of the company held last month. This doubling of sales volume since 1950 coincides with the period of time that the third generation of the Mennen family—William G. Mennen Jr., and his brother George Mennen, have been active in the company's administration. While William G. Mennen Sr., son of Gerhard Mennen who founded the company in 1879, maintains active leadership in the company, his sons were given the assignment of assembling their own staffs in 1950.

Achievements attributed directly to the young Mennens included development and marketing of Mennen's Spray Deodorant, said to be the largest selling spray deodorant today, and the largest selling deodorant of any type in U. S. drug stores; Mennen Foam Shave, said to be the fastest growing aerated shave cream; Afta, said to be the number one non-alcoholic after-shave; and Skin Magic, a silicone hand lotion.

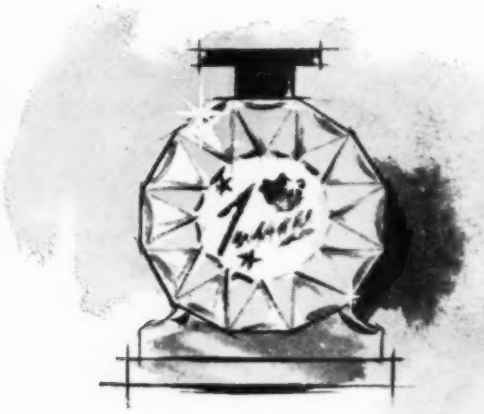
William G. Mennen Jr. told stockholders that expanding new possibilities in food stores are not only adding sales volume, but are encouraging widespread family use of Mennen products, which have hitherto been promoted almost exclusively to men.

Kimbriel Executive V.P.

Harry A. Kimbriel was advanced to the position of executive vice-president of the National Wholesale Druggists Association last month by board of control of that association. Mr. Kimbriel joined the association in November as Executive secretary.

Yardly Settles with FTC

Yardley of London has settled its case with the Federal Trade Commission by entering into a consent order which prohibits the firm from discriminating among customers in the furnishing of the services of demonstrators. The agreement was made for settlement purposes only and does not constitute an admission by the company that it has violated the law.



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ENGELHARD INDUSTRIES

Praised for Management

Outstanding performance in vital management areas has drawn praise from the American Institute of Management for three manufacturers of drug products and two manufacturers of cosmetics. The 1956 Manual of Excellent Management, published by the association, has selected these five firms from among the 409 which it lists.

The Gillette Company and Procter & Gamble, both cosmetic producers, are cited for exceptional sales success and the degree to which effective sales management, advertising and other sound marketing policies have aided the entire effort.

In addition, Procter & Gamble is praised for its growth, reputation and contribution to the national economy, for soundness of internal procedures and lines of communication, and for not only growth, but stability and potential of earnings as well. Also found worthy of praise was P. & G.'s carefully planned and fruitful research activities and the quality of its executive personnel, unity of command, training and development, and the general harmony which has resulted in overall excellence.

Johnson & Johnson is cited for a noteworthy production record, through both prudent employment of physical facilities and health employee relations.

Oil Mathieson Chemical Corporation is noted for consistent efforts to deal fairly with its stockholders, from sound dividend policies to accurate reporting.

G. D. Searle is singled out not only for growth, but for stability and potential of earnings as well, and for its carefully planned and fruitful research activities.

Other areas of appraisal are: Corporate structure, directorate analysis, and fiscal policies.

Earnings Increase

The First City National Bank, New York, reports that net income of leading corporations in the drug and medicinal field totaled $153,620,000 for 1955, an increase of 30 per cent over the 1954 total of $118,017,000. Net income of leading corporations in the soap and cosmetic field is given as $103,241,000, an increase of 13 per cent over the 1954 total of $91,451,000.

Won't Empty Mental Hospitals

We are "not to kid ourselves" that the newly-developed tranquilizing drugs will "empty out the mental hospitals and produce in us serene peace of mind and tranquillity," Cincinnati neuropsychiatrist Dr. Howard D. Fabing told the American College of Apothecaries last month. Tranquilizers "have limited uses and different indications," said Dr. Fabing. "They are not immediate in action, and as a group some have small effect while others have no effect on the so-called 'normal' segments of the population."

These drugs can be divided into two groups, he said: "The first are those which have been used primarily in major psychiatric disorders, or the psychoses, and the second are those which are suggested for trial only in the minor psychiatric disorders, or the neuroses."

He said "rational therapy" will come only after we gain knowledge of the causes of many chronic neurological and psychiatric diseases "which we know practically nothing about" at the present. "Furthermore, as we empty a few beds occupied by psychotics who are young, we immediately fill them up with the aged. The geriatric problem is a monstrous one. We struggle constantly to maintain ourselves as individuals in a group. This will always produce stress as long as human beings rub elbows together."

Dr. Schaeffer on Restrictive Sales

Hugo H. Schaefer, Dean of the Brooklyn College a-Pharmacy, and chairman of the committee on legislof tion of the A.Ph.A., told the annual meeting of the A.Ph.A. that it is "unfortunate" that some of our states "have weak laws and little control over the place of sale of drugs and medicines." "In many instances," he said, "practically all packaged products properly labelled for over-the-counter sale may be sold in non-drug outlets. Products which are released from the prescription status overnight become grocery store merchandise. This certainly is a monstrous miscarriage of provisions intended to protect the public health.

Dr. Schaeffer said the transfer of drugs from prescription status to grocery store counters is occurring in states "which have adopted the definition for proprietary medicines drawn up by proprietary interests." He said that definition describes a proprietary drug as one which "is completely packaged, bears proper labeling, including adequate directions for use, and which is advertised directly to the public."

Once a drug is placed on the proprietary list, it is permitted to be sold "without any restrictions whatsoever in any type of outlet," he said, adding that a manufacturer who obtains FDA permission to drop the prescription legend can "place a few advertisements in newspapers in order to legally sell the product through grocery store outlets." "There must be some satisfactory solution" to the problem of increased sales of over-the-counter drugs in supermarkets "if pharmacy, as we now know it, is to survive," he said.

Dr. Schaeffer attacked the FDA regulations for removal of the prescription legend. A manufacturer "may at any time submit evidence to show that his product is safe for over-the-counter sale and petition the FDA for permission to change the labeling." A hearing is then held at which opponents to the change may try to prove "free and open sale of the product under consideration would be a health hazard."

Surprising enough, Dr. Schaeffer attacked this method because the manufacturer has had "years of experience with the product and ample time to present a favorable case," adding that opponents have had "relatively little time to study the matter." He added that the manufacturer can use profits from the item to pay for clinical investigations, but that opponents "have no such source of income and must assume the expense purely in the interest of public health." He declared that the result of this procedure has been that "all such transfers from prescription to over-the-counter sale have occurred in the absence of opposition without any hearings being called."

It has always been our understanding that the FDA is

LATEST EDITION

Laboratory Data Sheet

VITAMIN A 'ROCHE'

Liquid vitamin A palmitate and acetate
Dry vitamin A acetate
Dry vitamin A and D_2

Roche has all popular types for your manufacturing needs

Summarized below for your convenience are facts about the many types of Roche vitamin A and vitamin A & D combinations which meet practically all pharmaceutical needs. Samples and technical literature are yours on request — without charge, of course. Ask your Roche salesman or write.

	Type & Name	Usage	Potency (in U.S.P. units per gram)	Additive	Stability
LIQUID TYPES	**P1MO** Vitamin A palmitate *(liquid)*	In tablets, aqueous dispersions, capsulated products	1,000,000	Edible oil only, for standardization	Excellent
LIQUID TYPES	**P1MO/BHA** Vitamin A palmitate *(liquid)*	as above	1,000,000	Edible oil plus antioxidant (butylated hydroxy-anisole). Note 1.	Excellent
LIQUID TYPES	**P1.3** Vitamin A palmitate *(liquid)*	For oil-free prepara-tions	1,350,000 to 1,450,000	None	Excellent
LIQUID TYPES	**A1MO** Vitamin A acetate *(liquid)*	In oil solutions and gelatin capsules	1,000,000	Edible oil only, for standardization	Excellent
SPECIAL	Type P1.8 *(liquid)* Vitamin A palmitate	For research and special production	1,650,000 to 1,800,000	None	Needs special handling
SPECIAL	Type A2.9 *(crystalline)* Vitamin A acetate		2,800,000 to 2,900,000	None	Needs special handling
DRY TYPES	Type 325A-32.5D Vitamin A acetate & Vitamin D_3 *(dry)*	For tablets, capsules, vitamin-fortified powdered supplements	A—325,000 D_3—32,500	None	Excellent
DRY TYPES	Type 325 Vitamin A *(dry)*		325,000	None	Excellent
DRY TYPES	Type 500 *(dry)* Vitamin A acetate	For dry prepara-tions: tablets, capsules, vitamin-fortified powdered supplements	500,000	None	Excellent
DRY TYPES	Type 500A-50D Vitamin A acetate & Vitamin D_3 *(dry)*		A—500,000 D_3—50,000	None	Excellent

Note 1 { Antioxidant added at 10 mg. per 1,000,000 units of vitamin A.

Packaging { All Roche vitamin A is packaged to insure safety in transit and ease of handling in pharmaceutical operations.

Vitamin Division

HOFFMANN-LA ROCHE INC.

Nutley 10, New Jersey NUtley 2-5000

Pacific Coast distributor: **L. H. BUTCHER COMPANY** • San Francisco • Los Angeles • Seattle • Portland Salt Lake City • *In Canada:* Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec

Reprints of these data in 8¾" x 11" size are available on request. These can be used in the new Roche loose-leaf catalog, or in any standard 3-ring binder.

meticulous in examining the evidence submitted very carefully before taking a product off the prescription legend status, because the FDA, in such instances, must stand in the position of the guardian of the public health. Dr. Schaeffer's attitude seems to be more of the type of a person who would oppose free access on the part of public to safe and beneficial products for merely commercial or mercenary reasons.

Restrictive Sales Not Controversy

Pointing out that the exemption clause in the state pharmacy acts for the sale of proprietary medicines is of value to pharmacists because they cannot possibly oversee every sale in their stores, Dr. Frederick J. Cullen, executive vice-president of the Proprietary Association (now retired from that position), told the recent meeting of the A.Ph.A. that the problem concerning the place of sale of proprietary medicines is not truly a "controversy." He declared that is so because "the manufacturers and distributors of proprietary medicines are not asking for new laws or for new and extended privileges." He continued:

"When the dealers in patent or proprietary medicines began to be harrassed by representatives of the State Boards of Pharmacy, the manufacturer attempted to secure definitions for the terms 'patent or proprietary,' from the attorneys general of certain states, then through court action, and later through legislation. To my way of thinking the manufacturer is not engaged in a controversy. He is merely attempting to secure a clarification of the meaning of the words that have been included in the state pharmacy laws for more than fifty years. Such clarification would also provide an affirmation of the rights and privileges that were granted to the manufacturer by state legislators many years ago, and which some would now take away without due process of law.

"Those really interested in seeing this problem solved should be ready to meet on a common ground and to prepare an amendment to the pharmacy acts which would provide a definition—or better, a description—of the type of products that may be sold under the exemption clauses now existing in the various pharmacy laws. The solving of this problem would result in a great saving to both the manufacturer and the taxpayer."

Shulton Facts

Shulton, Inc. which issued for public sale last month 11,000 shares class A common stock, and 11,000 shares class B common stock at $17.50 per share, issued a prospectus from which the following information was gleaned.

Shulton, Inc., issued last month 110,000 shares of Class A Common Stock, and 110,000 shares of Class B Common Stock. The only difference in the class A and class B stock is that each class of stock has the right to elect one-half of the board of directors of the company. Of this stock, 45,000 shares of each class was purchased from the company, and 55,000 shares of each class was purchased from certain stockholders. A total of 200,000 shares were sold to the public at $17.50 per share, and 20,000 shares were sold to certain officers and employees at $16.50 per share.

The net proceeds to the company from the sale of 55,000 shares of each class of stock, estimated at $1,764,092, will be used to replenish the company's funds expended or to be expended for (1) approximately $450,000 for acquisition of A. Maschmeijer, Jr., Inc. in March 1955; (2) $240,000 for acquisition of realty and plant facilities at Toronto, Canada in January 1956; and (3) approximately $150,000 for acquisition of assets of Wesley Associates (advertising agency) in February 1956. The company intends to expend approximately $750,000 for improvement of existing plant facilities and construction of additional plant facilities at Clifton, New Jersey during 1956. The balance will be available for general corporate purposes.

The capital structure of the company after issuance and sale of these shares is: Notes payable three per cent due March 14, 1957, $141,117; preferred stock, five per cent cumulative, par value $100, 7,000 shares; class A common stock, $1 par value, 1,000,000 shares of which 605,000 are outstanding; and class B common stock, $1 par value, 1,000,000 shares, of which 605,000 shares are outstanding.

Net sales for 1955 totaled $24,936,456; for 1954, $18,969,746; for 1953, $16,833,710; for 1952, $13,825,520; for 1951, $12,336,752. Net income for 1955 totaled $2,283,127; for 1954, $1,857,575; for 1953, $880,962; for 1952, $809,111; for 1951, $778,134.

"The company is engaged primarily in the manufacture and distribution of over 100 different toiletry items for men and women," according to the prospectus, "and also manufactures fine organic chemicals and certain proprietary pharmaceutical specialties. Toiletries for men include shaving preparations such as after-shave lotion, pre-electric shave lotion, shaving creams and shaving soaps, and cologne, talcum and deodorants, all marketed under the trade name 'Old Spice.' The various lines of women's toiletries include such items as toilet water, talcum and dusting powder, colognes, perfumes, toilet soaps, hand lotions, bath salts, deodorants and shampoos, marketed principally under the trade names 'Early American Old Spice,' 'Escapade,' 'Desert Flower' and 'Friendship's Garden.' The company produces a suntan lotion under the trade name 'Bronztan.' It also packages and distributes cake soaps, produced by others to its specifications, in staple and novelty forms. During 1955, toiletries accounted for approximately 90 per cent of the company's aggregate sales. Men's toiletries represent by far the larger percentage of toiletry sales."

For diversification, the company entered the manufacture of a selected group of fine chemicals in 1950. This was expanded in March 1956 through the acquisition of A. Maschmeijer, Jr., Inc., manufacturers of menthols, musks and other products. The principal products of the chemical division now include synthetic heliotropine, synthetic menthols, geraniols, eugenols, musks, citronellol, benzyl acetate, benzyl alcohol, synthetic vanilla products, desoxycholic acid, ergotamine tartrate, plating additives, detergents and

New Fragrances for Home Permanent

One of the greatest problems in the formulation of hom
permanents can now be met successfully with new Synfleur fragrance
WAVE MASK 25 and WAVE MASK

Developed in the Synfleur laboratories after long and intensive researc
into the difficulties posed by the odor of these preparation
these new Synfleur fragrances have proven themselves ideal
the purpose. WAVE MASK 25 and WAVE MASK 30 were evolv
by skilled Synfleur chemists and technicians as artis
formulations for cold wave preparations. They are based on essent
oils and aromatic chemicals carefully screened for stabili
compatibility and solubili

These basic fragrances can also be adapted for effecti
economical use in other thioglycolate products where simil
masking problems are encountered. Our laboratories are at your dispos
to assist in their incorporation. Simply ask for sample
data or other help – without obligati

WAVE MASK 25
$3.00 the pound

WAVE MASK 30
$3.75 the pound

Founded 1889 by Alois Von Isak

Synfleur SCIENTIFIC LABORATORIES, I
MONTICELLO, N.

ATLANTA • DETROIT • NEW YORK • HAVANA • RIO DE JANEIRO • MEXICO, D. F. Chicago • Melbourne • Burma • Hong Kong • Bogota • San
Ciudad Trujillo • Guayaquil • Guatemala City • Calcutta • Wellington • Managua • Panama • Asuncion • Manila • San Salvador • Montre

CANADA: Herman & Leal • 637 Craig Street West • Montreal, Quebec

sun-screen chemicals, the last two solely for use in the company's toiletry products.

The company also manufactures a line of proprietary products for the treatment of skin and scalp disorders under the trademark "Thylox."

Of those employed by company in product quality control, and research for improvement of existing products or development of new ones, 28 hold bachelor's, master's or doctor's degrees. The company has between 1,000 and 1,300 employees, the number fluctuating with seasonal production requirements.

Distribution is through the company's sales staff to retail drug and department stores, drug chains, and selected wholesale druggists. Toiletries are sold to well over 15,000 accounts, none of which represents over 1.7 per cent of net sales.

Sales of chemical products are made principally to the food, drug, soap and cosmetic industries; proprietary specialties are marketed directly to customers in the drug trade. Chemical and proprietary products account for approximately 10 per cent of net sales. Foreign and export sales in 1955 were approximately 10 per cent of new sales. Most of the products sold abroad are manufactured by branch plants in Canada, Cuba and Mexico, or by independent manufacturing agents in Colombia, Venezuela and Holland. The principal foreign markets include Canada, Latin America and Western Europe.

The company's general offices and principal plants are located on 36½ acres of fee owned property at a junction of U. S. Route 46 and the Garden State Parkway in Clifton, New Jersey. The main manufacturing facilities are housed in three modern buildings with an aggregate floor space of 329,000 square feet. The principal plant is a three story, reinforced concrete structure of 228,000 square feet completed in 1946. The two other principal buildings, one for shipping and storage, and the other for chemical manufacture, built since 1950, are of steel and concrete block, or reinforced concrete with concrete block. Additional plants for manufacture of chemicals and pharmaceuticals are located in Newark, New Jersey under leases with renewal options until March 31, 1963.

The company also owns warehouses and sales offices in Chicago, and Culver City, California, and a newly acquired toiletries manufacturing plant, sales office and warehouse having 30,000 square feet floor area in Toronto, Canada. It leases a warehouse and a sales office in Dallas, Texas, a sales office in Atlanta, and sales administrative offices in Rockefeller Center, New York.

Parke, Davis Polio Program

Parke, Davis & Company expects to produce approximately 30 million cubic centimeters, or "shots" of its new polio vaccine by the end of the year, PD President Harry J. Loynd told stockholders. Last June, PD voluntarily withdrew from the program and assigned its research scientists to develop a new process whereby polio virus is inactivated through irradiation in combination with formaldehyde. On February 24, the Public Health Service released the first lot of the new vaccine. At the stockholders meeting last month, about 2.5 million cc. had been released, with another million expected to be released during April. By the end of June 10 million cc. are expected to be released, and then an additional 20 million cc. between July 1 and December 31. The vaccine is produced in the new $2 million polio vaccine facilities on a 700 acre farm at Rochester, Mich., about 35 miles north of Detroit. It takes 90 to 120 days to produce and test the vaccine. The company is now starting about two million cc. in the cycle each week.

Exclusive of polio vaccine, Mr. Loynd predicted a 10 per cent increase in sales and a 10 to 15 per cent rise in earnings this year. He said that the site of the new $10 million medical research center has not been selected, and that 24 possible sites are under consideration. When the center is completed the company will add 150 to 200 research to its present staff of about 400.

A new $2 million laboratory will be opened in Brockville, Ontario, in July. A new laboratory may be established in Pakistan, and present facilities in India may be expanded. A "small new plant" may be built in Colombia, and additions may be made to facilities in Brazil and England, Mr. Loynd said.

A.M.A. Cosmetic Symposium

The importance of physicians being acquainted with cosmetics and their effects upon people is clearly indicated by the fact that the Committee on Cosmetics of the American Medical Association is sponsoring a symposium at the 105th annual meeting of the Association being held in Chicago, June 11 to 15. The symposium is being held at 3:00 P. M. Wednesday, June 13th in the Ballroom of the Knickerbocker Hotel.

The papers being presented at the symposium are: Cutaneous Effects of Soaps and Detergents, by Raymond R. Suskind, M.D., Associate Professor of Dermatology and Syphilology, College of Medicine, University of Cincinnati; The Rational Use of Cosmetics in Medical Practice, (a) The dry skin problem; cosmetic creams and their modern additives: vitamins, hormones, antibiotics, topical antiseptics, by Irwin H. Blank, M.D., Research Associate in Dermatology, Harvard University Medical School; (b) Sunscreens and solar hypersensitivity; masking cosmetics, protective creams, by Stephen Rothman, M.D., Professor of Dermatology, University of Chicago; (c) Depilatories and antiperspirants, by Herbert Mescon, M.D., Professor and Head, Department of Dermatology and Syphilology, Boston University of Medicine; Clinical Appraisal of Dermatoses Due to Cosmetic Materials, by Carl T. Nelson, M.D., Executive Officer, Department of Dermatology, Columbia University. The symposium will close with a discussion period during which the panel of speakers will answer questions regarding specific cosmetic problems.

Invitations are being mailed to members of the cosmetic industry, and those who wish to attend should write for guest tickets to Veronica L. Conley, secre-

tary, Committee on Cosmetics, American Medical Association, 535 North Dearborn Street, Chicago 10.

Research in This Industry

As former President-Elect of the Industrial Research Institute, Robert D. Coghill, of Abbott Laboratories, moved into the presidency of that organization at the annual meeting held last month at White Sulphur Springs, W. Va., Dr. Thomas H. Vaughn, vice-president of the Colgate-Palmolive Company, and in charge of research and development activities of that company, was named president-elect of the Institute. Three years ago, Dr. Vaughn went to Colgate-Palmolive from Wyandotte Chemicals Corporation, having previously directed research units for Carbide and Carbon Research Laboratories.

But the point of the election of these two men, both from this industry, to the highest positions in the Institute is that since this industry spends more proportionately than any other industry, the top research men are to be found in this industry. Large expenditures for research are particularly true of the pharmaceutical branch of the industry.

Cosmetic Chemists' Seminar

The program for Third Cosmetic Seminar of the Society of Cosmetic Chemists, to be held September 27 and 28 has been completed by Gabriel Barnett, Seminar Chairman. Three half-day symposiums will be presented, one on the morning of September 27, one in the afternoon of the same day, and one in the morning of September 28. Each session will consist of two to four papers.

Biochemistry of Epidermal Keratinization is the subject of the first symposium. The moderator will be Dr. Marion B. Sulzberger, chairman, Department of Dermatology, New York University-Bellevue Medical Center. Papers before this session are: Biochemical Data on Physiologic and Pathologic Epidermal Keratinization, by Dr. Peter Flesch, University of Pennsylvania, Department of Dermatology; Physiology and Pathology of Epidermal Keratinization, by Dr. Stephen Rothman, University of Chicago, School of Medicine; Morphological Changes in Epidermal Cells Related to Keratinization, by Cecily Cannan Selby, Cornell University Medical College.

Theory and Application of Viscosity in Cosmetics is the subject of the second symposium. The moderator will be Dr. Frederick R. Eirich, Polytechnic Institute of Brooklyn. Papers before this session are: Capillary Methods of Flow Measurement, by Dr. Alden B. Bestul, National Bureau of Standards; Rotational Methods of Flow Measurement, by Dr. Walter K. Asbeck, Carbide and Carbon Chemicals Company; Ultrasonic Method of Flow Measurement, by Dr. Wilfred Roth. Roth Laboratory for Physical Research, Hartford 3, Conn.; Interpretations and Applications of Flow Measurement, by Miss Ruth N. Weltmann, National Advisory Committee for Aeronautics, Lewis Flight Propulsion Laboratory, Cleveland Airport, Ohio.

Modern Emulsification Techniques is the subject of the third symposium. Papers are: The Use of the votator for Continuous Emulsification, by E. T. Beck, Votator Division, Girdler Company, New York; Ultrasonic Emulsification: Theory, Applications and Limitations, by Dr. Wilfred Roth.

Plans are to hold the meetings, luncheons, cocktail party, and dinner at the New York Academy of Sciences. Attendance will be limited to 150 people at approximately $20 for members, and $25 for non-members. The afternoon of the second day of the seminar is given over to plant trips which will be announced.

Oregon and Virginia Fair Trade

The non-signer clause of the Fair Trade Act of Oregon was held unconstitutional by the Supreme Court of that State in the case of General Electric v. P. H. Wehle. The court held that the non-signer clause of the act violated the due process clause of the Federal and state constitutions, and that it also was an unconstitutional delegation of legislative power.

In Virginia, the State Court of Appeals held the Fair Trade Act of that State unconstitutional in the case of Benrus Watch Company v. Smith-Williams Jewelers. The court held that the Fair Trade Act conflicts with the Virginia Anti-Monopoly Act.

Since the States of Arkansas, Florida, Georgia, and Michigan have previously held the non-signer clause to be unconstitutional, and the State of Nebraska has held the entire Fair Trade Act of that State to be unconstitutional, there are now seven states in which fair trade enforcement has been voided. In addition, the District of Columbia, Missouri, and Texas never had fair trade laws. This means that there are thirty-eight states in which fair trade is still in effect.

SKF Mental Health Fund

The Smith, Kline & French Foundation has set up a Mental Health Fund of $125,000, which was announced at the start of National Mental Health Week by the philanthropic foundation set up three years ago by Smith, Kline & French Laboratories. The fund has ben created for use in the campaign against mental illness during the calendar year 1956. Principal targets will be basic research, psychiatric training, and professional and public education.

The first grants are a $30,000 donation to the American Psychiatric Association to further psychiatric fellowship program initiated by APA under a similar grant last year; a grant of $1,500 to the Child Study Center in Philadelphia for the child psychiatry training program; and a grant of $3,000 to the Menninger Foundation, Topeka, Kansas, for its psychiatric training program. Public Education grants thus far allotted include $3,500 for the National Association for Mental Health, for state and local chapter activities; and $2.500 to the League for Emotionally Distrubed Children, to assist in organizing their national public education and fund-raising campaign. The first basic research grants by the Foundation will be announced shortly.

Extrapolation to Man

by Nathan Millman, Ph.D.

DIRECTOR, DIVISION OF PHYSIOLOGY AND PHARMACOLOGY
ORTHO RESEARCH FOUNDATION, RARITAN, N. J.

EWING GALLOWAY PHOTO

> *". . . there can surely be no ground for doubting that, sooner or later, the pharmacologist will supply the physician with the means of affecting, in any desired sense, the functions of any physiological element of the body."*
>
> *Thomas Henry Huxley, 1881*

"There can surely be no ground for doubting that" one day Huxley's prophecy of just 75 years ago will be fulfilled. But, alas, it is often in the transposition of information gained in the laboratory to actual human experience that we stumble. For not always does the drug which produces in the experimental animal the effect "in any desired sense" do the same in man. This is so in spite of Huxley's equally optimistic statement that

> *". . . there is so close a solidarity between ourselves and our poor relations of the animal world, that our inaccessible inward parts may be supplemented by theirs."*

Remember, if you will, that a new therapeutic agent, born in a chemistry laboratory or extracted from natural sources is usually a complete enigma. Indeed, it is to the pharmacologist a fascinating mystery to be solved by detection methods no less clever in their way than those used by the leading fictional sleuths. His is the task of measuring the influence of the new agent upon the organ systems of experimental animals, of determining the mechanism by which it acts, and of describing the magnitude and nature of its toxicity. Perhaps he will find by virtue of his overall screening program that it causes a significant reduction in blood pressure—certainly a desirable activity. Will it do the same in several species, will it have untoward side reactions, can it be given orally? These and a myriad others are the questions to which he must find the answers. And finally for the pharmacologist, the critical, soul-searching stage of his research program comes when he is asked whether there exists reasonable evidence that the human will react in direction, degree and tolerance as did the experimental subjects. The bridge which he had awaited before crossing may sometimes seem insurmountable altogether; yet he must, in effect, conduct an "extrapolation to man."

Fortunately, sometimes he can accomplish this projection to man with but rare misgivings or reservations, if his investigations have reached an advanced stage. A certain number of his findings, however, will require some intensive thought on his part. He is quite aware that the functional equilibrium of the body is maintained by a series of checks and balances, and that the net reaction to a drug within any particular species perhaps may depend upon which nerve control system is affected in greater degree. And these reactions may vary in nature or degree with species or dosage.

For example, morphine is a general depressant to the sensory area of the cerebral cortex, producing quiet hypnosis and analgesia in most species. It has, however, another simultaneous effect upon certain hypothalamic areas, and in the cat and pig this usually gains the ascendancy, producing a very irritable, excited animal.

Variation in nature of response is evident in those cases in which small doses of drugs sometimes have activity diametrically opposed to that elicited by large doses or under different conditions. Our gentle friend alcohol is always a respiratory depressant—unless it is given during shock or collapse when, in small doses, it may in reflex fashion stimulate the respiratory centers. Yet even here, too enthusiastic dosing with brandy will reverse the effect and cause the expected depression.

A classic example of species and condition difference is the following. Epinephrine will have the net effect of relaxing the smooth musculature of the uterus of the cat, rat and guinea pig—if they are not pregnant. If they are pregnant, it will still cause relaxation in the cases of the rat and guinea pig, but will produce contraction in the cat. Now the rabbit uterus, regardless of pregnancy state, will always be contracted! This being the case, if epinephrine were not a known,

(Continued on page 692)

Drug and Cosmetic Operations

by Joseph Kalish, Ph.D.

The tables shown below are taken from financial statements of the respective companies. They are presented from an operational rather than a financial point-of-view, to indicate mark-up on cost of goods, cost of sales and overall profit.

The three groups of companies comprise those primarily in cosmetics, those in pharmaceuticals and those which are important in these two fields but whose specific operations are combined with others and cannot be clearly separated from the total. The listing is not complete; some companies issue no public statements and others failed to send in statements.

In cosmetic operations, net income varies from about five per cent to over nine per cent of sales with administrative and selling costs from 33 to 44 per cent of sales. Cost of goods varies from 37 to 47 per cent of sales. These data, available from only three of the companies in the table, have been applied to estimation of sales volume in other cases.

From data for wholly pharmaceutical operations, cost of goods is 21 to 65 per cent of sales, administrative and selling expenses from 22 to 63 per cent and net income from 3.5 to 24 per cent. These variations can be explained by individual factors: Parke, Davis and Abbott, large complete line ethical houses, show very similar percentages of profit, selling expenses and cost of goods. These figures are probably applicable to the Lilly operation. Smith, Kline & French Schering and Searle reflect successful specialty development and sales in terms of greater profits and lower percentage cost of goods. Companies in the tabulation with the highest proportionate cost of goods sell competitive proprietaries, hospital supplies or private label pharmaceuticals.

Where a cosmetic or pharmaceutical operation is part of a large company engaged in other types of business, specific data are not given, but from averages in other tables it is possible to make useful estimates.

PHARMACEUTICALS, COSMETICS, CHEMICALS, ETC.

(In thousands of dollars)

	1955				1954			
	Net Sales	Cost of Goods	Sell., Adm., etc., Expenses	Net Income	Net Sales	Cost of Goods	Sell., Adm., etc., Expenses	Net Income
Olin Mathieson Chem. Corp.	560,480	385,083	89,351	44,558	502,479	347,081	85,333	38,075
Colgate-Palmolive Co.—Domestic	285,577	157,918	108,322	9,260	261,848	148,456	97,062	8,031
Colgate-Palmolive Co.—Foreign	183,001	104,887	58,007	8,460	162,501	90,507	50,275	9,745
American Cyanamid Co.	451,088	245,149	131,896	38,714	397,592	218,128	125,712	27,050
Amer. Home Products Corp.	234,546	103,820	84,855	20,537	203,139	92,626	73,505	16,211
Johnson & Johnson—Domestic	222,880	140,447	56,589	11,312	200,926	126,828	49,934	9,461
Johnson & Johnson—Foreign	44,642	27,527	11,388	2,649	42,610	26,089	10,304	2,712
Gillette Co.	176,929	51,851	68,692	29,031	162,189	—107,461—		26,138
Sterling Drug, Inc.	166,931	—136,242—		15,684	155,866	.....	.....	12,400
Chas. Pfizer & Co., Inc.	163,795	87,017	50,980	15,327	145,239	76,091	44,961	15,201
Merck & Co., Inc.	157,929	79,785	47,795	15,714	145,460	79,925	45,639	12,614
Warner-Lambert	90,037	34,191	38,594	7,283	85,946	35,099	35,292	6,378
Vick Chemical Co.	72,672	38,199	20,916	6,529	65,364	34,680	17,696	5,910
Emerson Drug	16,928	8,790	5,293	1,222	15,167	7,972	4,884	1,108

Olin Mathieson Chemical Corporation—No specific details of the Squibb Division.

Colgate-Palmolive Company—Fab and Colgate Dental Cream are two largest selling products. Dental cream sales at new high and is largest selling brand on market. Halo and Lustre-creme lead liquid and cream shampoo markets.

American Cyanamid Company—No specific details of pharmaceutical operations. Research and process development expenses $20,657,601.

American Home Products Corporation—Ethical Drugs 42 per cent, Packaged Drugs and Cosmetics 20 per cent, Foods 21 per cent, Household Product 17 per cent of total sales.

The Gillette Company—No specific details of cosmetic operations.

Sterling Drug, Inc.—Medicinal preparations $130,517,907 or 78.2 per cent, Industrial products $20,122,947 or 12.0 per cent, Household and toilet articles $16,289,665 or 9.8 per cent of total sales.

Chas. Pfizer & Co., Inc.—Research expense $7,000,000. Net sales made up of 32 per cent Pfizer Laboratories, 22 per cent Chemical, five per cent Roerig, eight per cent Agricultural, 33 per cent Pfizer International.

Merck & Co.—Research and development $8,500,000 or 5.4 per cent of total sales. International operations $36,000,000, 23 per cent of sales.

Warner-Lambert Pharmaceutical Company—Domestic Sales (Warner-Lambert-Emerson) made up of 20.2 per cent Ethical pharmaceuticals, 36.9 per cent Proprietary pharmaceuticals and drug sundries, 22.1 per cent Toiletries and cosmetics, 18.5 per cent Plastic and glass products, 2.3 per cent Export sales.

Vick Chemical Company—Home medications $31,000,000; pharmaceuticals, chemicals, plastics $35,000,000; cosmetics $5,000,000.

Emerson Drug Company—Sales include glass products. Advertising expense $2,104,980.

COSMETICS

(In thousands of dollars)

	1955				1954			
	Net Sales	Cost of Goods	Sell., Adm., etc. Expenses	Net Income	Net Sales	Cost of Goods	Sell., Adm., etc. Expenses	Net Income
Avon Products	68,934	25,694	30,486	6,251	55,059	20,510	24,860	4,886
Revlon, Inc.	51,647	21,128	22,599	3,656	33,604	15,128	15,336	1,298
Max Factor & Co.	(33,000)	(14,000)	13,908	2,418	(27,000)	(11,500)	11,241	1,902
Helene Curtis Ind.	27,751	....	....	1,406	23,900	....	....	1,028
Shulton, Inc.	24,936	11,638	8,145	2,283	18,970	8,172	6,736	1,858
Warner-Lambert Prod. Corp.	23,800	....	....	...	22,600	....	....	...
Lehn & Fink	23,011	—22,552—		200	22,085	—20,168—		1,056
Coty, Inc.	(21,000)	(8,200)	10,996	753	(17,700)	(7,000)	10,175	336
Helena Rubinstein, Inc. (June 30)	20,311	—18,336—		972	....	....	....	...
Vick (June 30)	5,000	....	....	...	6,000	....	....	...

Avon Products, Inc.—Fourteen new items added to line in 1955, 10 new items scheduled for introduction in 1956.

Revlon, Inc.—Several new products introduced in 1955; laboratory staff of 50 in 10 major groups. Sells more lipstick and nail enamel abroad than any other United States manufacturer.

Max Factor, Inc.—Sales and cost of goods estimated for 1955 and 1954. Sales increased by 21 per cent in 1955 over 1954.

Shulton, Inc.—Toiletries 90 per cent of sales, mainly men's toiletries. Advertising and promotion expense $3,778,000 in 1955, $2,980,000 in 1954. Research staff of 28 professional people.

Warner-Lambert Prod. Corp.—Including Emerson, toiletries and cosmetics were 22.1 per cent of domestic sales in 1955, 22.3 per cent in 1954.

Coty, Inc.—Sales and cost of goods estimated for 1955 and 1954.

Vick Chemical Co.—Cosmetic sales from chart in statement.

PHARMACEUTICALS

(In thousands of dollars)

	1955				1954			
	Net Sales	Cost of Goods	Sell., Adm., etc. Expenses	Net Income	Net Sales	Cost of Goods	Sell., Adm., etc., Expenses	Net Income
American Home Prod. Corp.	145,400	....	....	....	139,000	....	....	....
Eli Lilly & Co.	141,317	—106,149—		16,328	122,260	—95,419—		11,343
Sterling Drug	130,518	....	....	....	122,081	....	....	....
Parke, Davis & Co.	123,113	50,275	44,655	14,322	109,936	50,797	41,269	10,494
Merck & Co.	100,000	....	....	....	.....	....	....	....
Abbott Labs.	91,707	36,699	33,753	9,683	88,105	37,599	31,811	8,702
Smith, Kline & French Labs.	91,673	30,153	26,652	15,999	65,357	24,277	20,577	9,336
Warner, Lambert, Emerson	61,000	....	....	....	56,500	....	....	....
Chas. Pfizer	60,604	....	....	....	.....	....	....	....
Schering Corp.	45,960	10,286	17,318	8,292	19,426	5,957	10,440	1,559
G. D. Searle & Co.	26,039	6,425	6,156	6,136	24,342	5,978	5,651	5,836
Norwich Pharmacal Co.	24,827	7,024	11,448	2,772	20,794	6,573	9,494	2,042
Plough, Inc.	21,004	11,686	7,727	727	20,128	11,734	7,212	637
Allied Labs., Inc.	17,760	7,921	7,198	1,292	16,070	7,175	6,786	1,019
Baxter Labs., Inc.	12,045	7,809	2,609	571	14,793	10,150	3,043	535
U. S. Vitamin Corp.	10,487	—8,822—		976	8,878	—7,874—		665
Noxzema Chem. Co.	7,877	—6,542—		598	7,308	—6,169—		505
Strong, Cobb & Co., Inc.	6,592	5,478	850	93	6,789	5,795	1,026	54d
Lakeside Labs., Inc.	5,454	1,127	3,418	369	5,506	1,216	3,562	293

American Home Products Corp.—Ethical Drugs $98,500,000, packaged drugs and cosmetics $46,900,000.

Eli Lilly & Company—In 1955 produced 20,700,000 doses of Salk vaccine, 70 per cent of total.

Sterling Drug, Inc.—Medicinal preparations—78.2 per cent of total.

Parke, Davis & Company—1955 sales: General pharmaceuticals $77,999,627; chlormycetin $35,180,562; other antibiotics $3,929,762; surgical dressings $6,003,293. Research and product development expense $4,662,191. Detail staff—850.

Merck & Co.—Sales of vitamins, hormones, antibiotics, poultry disease products were about $100,000,000 or 63 per cent of total sales. Expenditures for research and development $8,500,000 or 5.4 per cent of total sales in 1955.

Abbott Laboratories—Research expenditures in 1955 amounted to four per cent of sales, with staff of 350.

Smith, Kline & French Laboratories—Research expenditures $4,997,082 in 1955, with over 400 persons. Research grants were in excess of $600,000.

Warner-Lambert Pharmaceutical Company—Six items produced $14,000,000 of ethical pharmaceutical sales. Research budget for 1956 more than five per cent of world-wide pharmaceutical sales. Pharmaceutical specialties represented 64 per cent of overseas volume of $36,000,000. Including Emerson, Ethical Pharmaceuticals were 20.2 per cent of domestic sales; proprietary pharmaceuticals and drug sundries 36.9 per cent.

Chas. Pfizer & Co.—World's largest producer of antibiotics. Research—$7,000,000 in 1955. Pfizer Laboratories 32 per cent of total sales, Roerig five per cent of total sales.

Schering Corporation—Research and development expense $2,675,348. Domestic ethical sales, 84 per cent of total volume, proprietary and cosmetic sales, three per cent of total sales.

Noxzema Chemical Co.—Allocation of $100,000 for new product development.

COSMETICS 1955

While total sales of cosmetics at retail were up in 1955, figures released by Internal Revenue Service indicate that sales of taxable cosmetics were down for that year. Total taxes of $76,381,000 collected on retail sales of cosmetics for 1955 at a retail rate of 10 per cent, indicate retail sales of taxable cosmetics for that year of $763,810,000. Taxes collected during 1954 totaled $97,440,000, but during the first quarter of that year the tax was at the rate of 20 per cent, while for the remaining three quarters of the year the rate was 10 per cent. Therefore, reducing this tax total for 1954 by one eighth, we get a figure of $85,360,000, which would indicate sales of taxable cosmetics for that year of $853,600,000. This would indicate clearly that the great increases in sales of cosmetics for 1955 occurred in the non-taxable cosmetics. The main groups of non-taxable cosmetics are dentifrices, shaving creams, baby preparations, and all shampoos which are recommended for cleansing purposes only.

Tax collections are given by the Internal Revenue Service for various areas and states. The percentages of the total collections for 1955 for the areas are:

Atlanta Region—Atlanta, Birmingham, Columbia, Greensboro, Jackson, Jacksonville, Nashville—7.2 per cent.

Boston Region — Augusta, Boston, Burlington, Hartford, Portsmouth, Providence—5.4 per cent.

Chicago Region—Chicago, Detroit, Milwaukee, Springfield—13.3 per cent.

Cincinnati Region—Cincinnati, Cleveland, Columbus, Indianapolis, Louisville, Parkersburg, Richmond, Toledo—8.7 per cent.

Dallas Region—Alberquerque, Austin, Dallas, Little Rock, New Orleans, Oklahoma City—7.1 per cent.

New York City Region—Albany, Brooklyn, Buffalo, Lower Manhattan, Syracuse, Upper Manhattan—20.7 per cent.

Omaha Region—Aberdeen, Cheyenne, Dencer, Des Moines, Fargo, Kansas City, Omaha, St. Louis, St. Paul, Wichita—8.5 per cent.

Philadelphia Region—Baltimore (including Maryland and the District of Columbia), Camden, Newark, Philadelphia, Pittsburgh, Scranton, Wilmington—8.5 per cent.

San Francisco Region—Boise, Helena, Honolulu, Los Angeles, Phoenix, Portland, Reno, Salt Lake City, San Francisco, Seattle (including Washington and Alaska)—15.1 per cent.

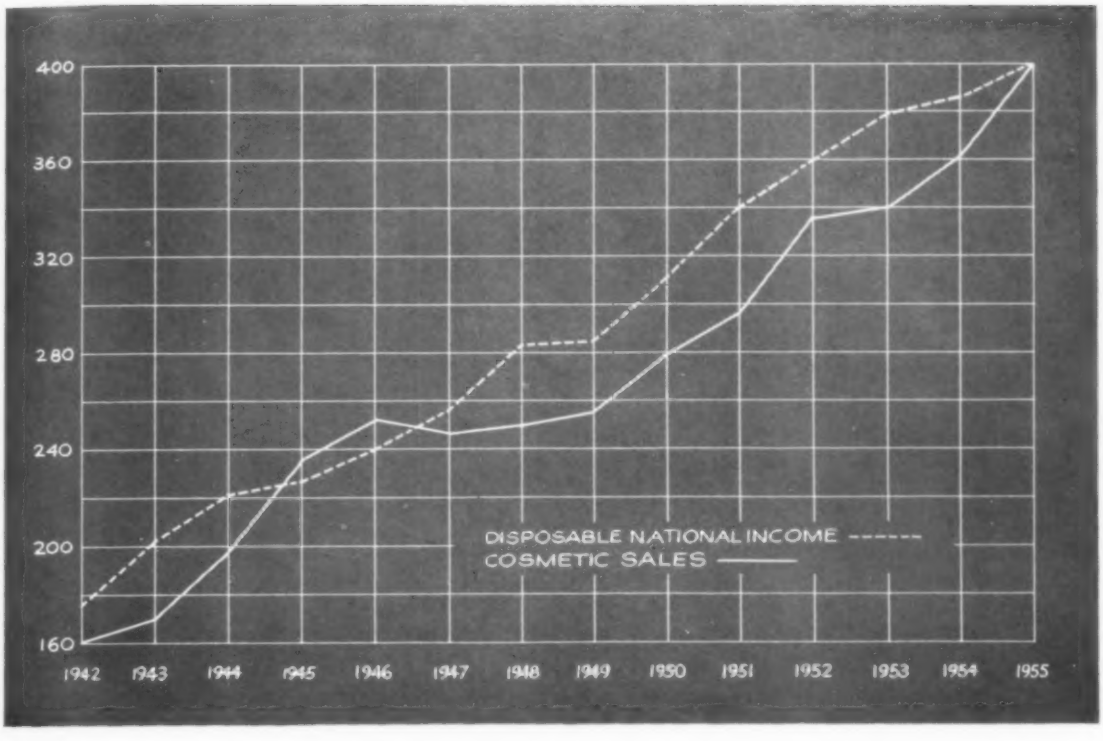
Collections given for eight states which comprise more than one district account for the following percentages of the total collections:

California, 10.8; Illinois, 7.3; Missouri, 3.0; New Jersey, 1.9; New York, 24.6; Ohio, 4.8; Pennsylvania, 4.2; Texas, 4.2.

Cosmetic and toilet goods sales for 1955 stood at an all-time record of $1,192,200,000 at retail, a gain over 1954 of 9.7 per cent, according to the Toilet Goods Association. The association points to a "very substantial gain of more than eight per cent in sales of dentifrices . . . practically all (of) this gain took place in food stores." Dentifrice sales in both drug and variety stores were lower than in 1954. Shaving creams "showed a very sharp gain of 11 per cent," says TGA, sales in this category through food stores being up 20 per cent. "Undoubtedly, the reason for the great increase in shaving cream dollar volume was the increase in popularity of the aerosol creams which are considerably higher in cost per shave than either the lather or brushless creams," explains TGA. "Another group which showed continuing increase was the aerosol hair sprays, but the remainder of the group of hair products which have been increasingly sensationally over the last several years, did not keep up with the previous percentage of increase."

Fragrance products in general showed sales at approximately the 1954 rate, according to TGA, which points out that there was a "significant increase in sales of lipsticks which was reflected as well in somewhat increased sales of make-up products as a whole. The single exception to this was loose face powder which again declined in sales volume."

"Every type of outlet showed a gain in total sales," says TGA, "but percentage-wise, food stores and house-to-house sales showed the greatest increase. Business in chain and independent drug stores dropped below 30 per cent of total volume for the first time. Department stores and specialty shops continued to hold a little more than 22 per cent of total volume. The increase in food stores continued but it was largely traceable to business in . . . tooth pastes, shaving creams, hair tonics and shampoos. Efforts to expand the list of products sold in food stores did not meet with conspicuous success. The rate of increase through food outlets was somewhat lower than it had



been in previous years, and the same was true in the case of house-to-house sales which improved their percentage to a flat twenty per cent but did not increase as rapidly as in 1954 and 1953."

"Business in chain and independent drug stores was up six per cent from 1954," according to TGA, "department stores and specialty shops were up eight per cent, food stores were up 13 per cent, and house-to-house sales were up approximately 11½ per cent."

A tabulation of the percentages of cosmetic taxes collected from the various states, although these are not internal revenue districts, would probably show close to the following figure:

	Per Cent of Total
New England	
Maine	0.33
New Hampshire	0.17
Vermont	0.09
Massachusetts	2.12
Rhode Island	0.37
Connecticut	0.91
	3.99
Middle Atlantic	
New York	24.6
New Jersey	1.9
Pennsylvania	4.2
	30.7
South Atlantic	
Delaware	0.14
Maryland	1.14
Dist. of Columbia	1.26
Virginia	1.32
West Virginia	0.71
North Carolina	1.15
South Carolina	0.51
Georgia	1.63
Florida	1.35
	9.21
East North Central	
Ohio	4.8
Indiana	2.1
Illinois	7.3
Michigan	5.4
Wisconsin	1.2
	20.8

(*Continued on page 700*)

A.P.M.A. Meeting

At its 49th Annual Meeting, held at Boca Raton, Florida last month, the American Pharmaceutical Manufacturers' Association took the steps necessary to put the support of the Association behind the Health News Institute. The Institute is the organization that has been created to develop and operate a public relations program for the "health team," which comprises manufacturers, wholesalers, retailers, medical practitioners, and hospitals.

The Health News Institute was put on its feet by the members of the executive committee of the American Drug Manufacturers' Association personally underwriting the sum of $100,000 for three years. The reason why this underwriting was personal with these men was that the executive committee of the ADMA could not adopt the plan without submitting it to the membership of the ADMA, which has since been done at the recent annual meeting.

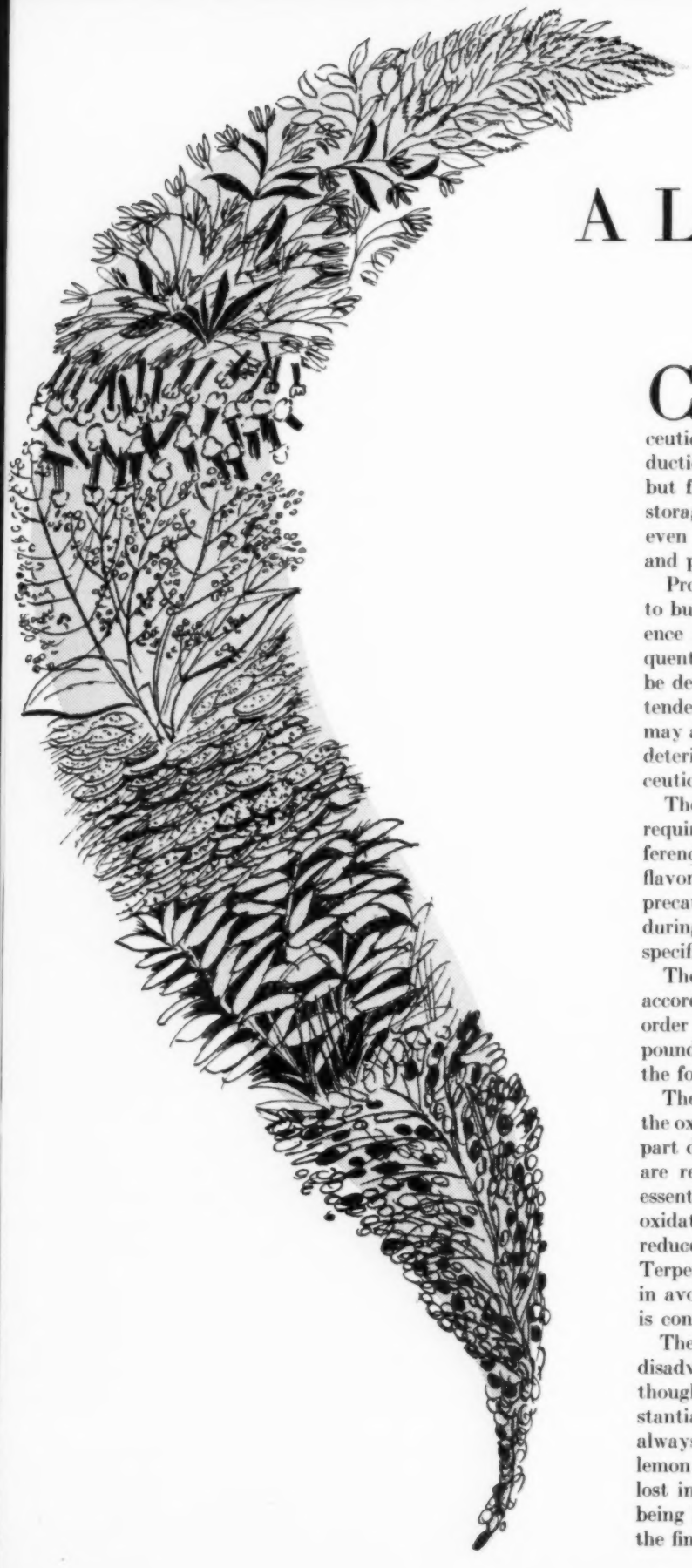
With the APMA underwriting $50,000 for three years, the ADMA must also underwrite only a like amount, or $50,000 instead of the $100,000 pledged by the members of the ADMA executive committee.

The action taken by the APMA to underwrite $50,000 a year for the Institute consisted of an assessment of 50 per cent of the dues of active members, and the doubling of the dues of associate members from $300 to $600 per year.

The original plan as developed by the ADMA committee on public relations calls for total annual contributions of $195,000. In addition to the $100,000 to be contributed by the ADMA and APMA, it is expected that the American Medical Association will contribute $25,000. Seven other associations, each contributing $10,000, will make up the balance. These associations are: American Hospital Association, American Pharmaceutical Association, Federal Wholesale Druggists Association, National Wholesale Druggists Association, National Association of Retail Druggists, Proprietary Association, and the National Association of Chain Drug Stores.

The executive director of the Institute, Chet Shaw, who is now located in an office at 342 Madison Avenue, New York, told the APMA meeting that the Institute

(*Continued on page 696*)



A Life Assurance

Considerable efforts are expended by the pharmaceutical manufacturer in the creation, testing, production and sale of his products. Equally important but frequently neglected is the proper handling and storage of essential oils and other flavoring materials even though they often represent the most sensitive and perishable constituent in the formula.

Progressive manufacturers make it a sound practice to buy the finest essential oils available, since experience has shown that off-qualities of an oil are frequently augmented in the finished product. This may be detected either immediately or during aging. Extended bulk storage of oils of questionable quality may also result in substantial financial loss because of deterioration. The purchase of inferior oils for pharmaceutical flavoring therefore is false economy.

The use cost of flavors and the minute quantities required for each batch has often resulted in indifference regarding selection, handling and storage. A flavor must not only enhance the product but every precaution must be taken to assure minimal changes during shelf life and this can be done only by taking specific steps to prolong original freshness.

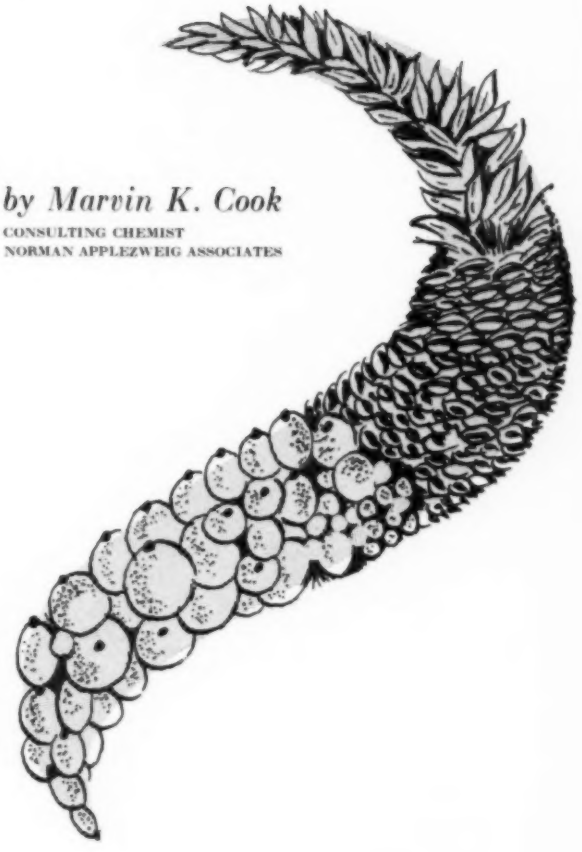
The constituents of essential oils may be categorized according to the order of boiling points. In ascending order we find terpenes ($C_{10}H_{16}$), oxygenated compounds, sesquiterpenes ($C_{15}H_{24}$) and non-volatiles in the form of waxy or viscous residues.

The odor and flavor effect is derived primarily from the oxygenated compounds. The terpenes for the most part do not contribute greatly to the odor value and are responsible for the difficulties experienced with essential oils. The terpenes are readily susceptible to oxidation in the presence of light and moisture and reduce the over-all solubility of the oil upon aging. Terpeneless oils or spray dried flavors are preferable in avoiding deterioration, particularly if long storage is contemplated.

The use of terpeneless oils is attended by certain disadvantages. The price is generally high and even though the flavorant is quite concentrated and substantially less is required in use, the flavor effect is not always the same as the original. For example, fresh lemon oil has a rich delicate aroma and flavor that is lost in the deterpenation process, the terpeneless oil being harsh and powerful and lacking upon dilution, the finer aspects of the original oil.

Policy for Flavors

by Marvin K. Cook
CONSULTING CHEMIST
NORMAN APPLEZWEIG ASSOCIATES



Antioxidants have proven valuable adjuncts in the stabilization of essential oils but it is vital to apply the antioxidant as early in their history as possible. There is no advantage in adding either minimal or excessive quantities of an antioxidant to an oil in a state of deterioration as oxidation has already gained ascendancy and progressive deterioration usually cannot be halted by this means.

The flavor manufacturer does everything possible to deliver merchandise in top condition but he can hardly be held responsible for the changes that take place as a result of improper handling and storage. Occasionally reputable flavor manufacturers are unjustly accused of selling inferior oils simply because deterioration was noted after storage. Upon careful investigation the fault practically always is traceable back to the lack of awareness on the part of the user regarding proper handling and storage techniques.

The selection of a flavor is limited by the nature of the base into which it is ultimately incorporated. If the product has a high water content, the reaction of the flavorant is important since we are in many instances dealing with water insoluble or sparingly soluble essential oils. Pre-solubilized oils are available but are not always employed. The reaction of water on a flavor is unpredictable unless the flavor has been designed specifically for that purpose. The effect may be superior at first but on the other hand the keeping quality may be lowered appreciably. There may be a reaction set up with one or more of the ingredients and the hydrolysis of certain esters commonly employed in flavors may be catalyzed, causing off-flavors.

A detailed discussion of the chemistry of essential oils is not within the scope of this paper, however. The following essential oils represent those commonly employed and will provide the reader with some idea of the techniques of handling and storage of oils which are applicable to practically all flavorants.

Oil of Peppermint—This important flavorant enjoys a higher degree of stability than most essential oils, since the alcohol, menthol makes up an appreciable portion of the oil. The oil may be stored safely in heavily tinned containers but clean amber bottles are preferred. Bottles should be filled to the neck, tightly stoppered and stored away from heat and direct light at a temperature of around 70° F. The presence of weeds in peppermint crops will often impart a repugnant flavor to the distilled oil. This may be attributed to the grower's carelessness in cultivating his field. This can produce a very unpleasant earthy, moldy or weedy note in a pharmaceutical preparation and a good quality vacuum-steam redistilled oil is therefore strongly recommended.

Oil Clove—Eugenol, the chief constituent of clove oil will deteriorate slowly under unfavorable storage conditions. Traces of iron may produce undesirable color changes both in the oil and the flavored product. Although safely stored in heavily tin-lined drums, the best container is glass. Avoid heat and light and maintain at a uniform temperature of 70° F.

Oil Cassia—Improper storage will slowly convert the aldehydes into the corresponding acids. For lengthy storage, the oil should be removed from metal cans and drums and placed in amber glass bottles. Store away from heat and direct sunlight at a uniform temperature of 70° F.

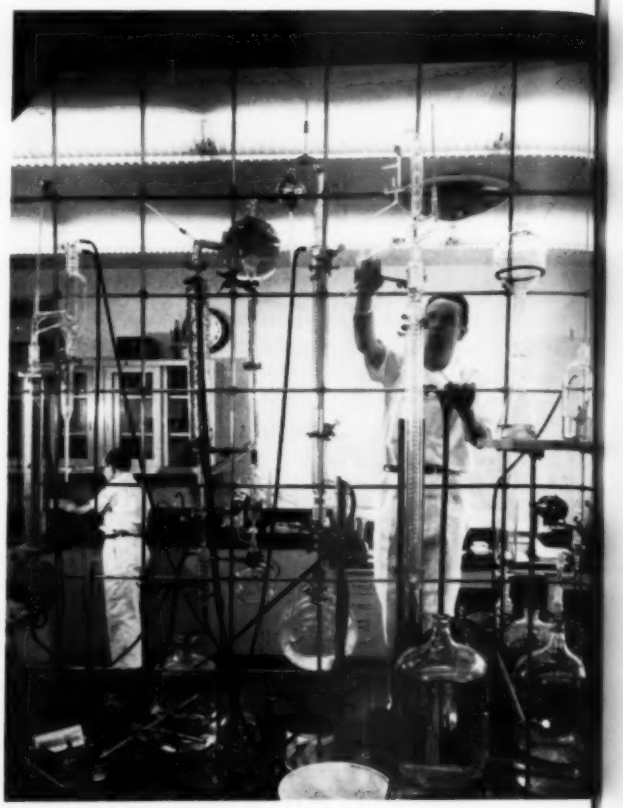
Oil Bitter Almond—Since this oil has a high aldehyde content, it should be stored in a similar way as Oil of Cassia.

Oil of Spearmint—This oil contains a rather high percentage of ketones which will polymerize under improper storage conditions. In order to prevent catalysis as a result of metallic contamination

(*Continued on page 697*)

the NITROFURANS

by L. Eugene Daily, M.D.
EXECUTIVE VICE PRESIDENT OF EATON LABORATORIES



Paul Seehausan, chemical engineer, adjusts equipment, while Emanuel Ackreman, left, assists in prepilot studies at the Melvin C. Eaton Research Laboratory.

Ten years ago Eaton Laboratories was founded at Norwich, New York for the specific purpose of developing a new family of antimicrobial agents, the nitrofurans, discovered a few years previously in the research laboratory of The Norwich Pharmacal Company. Unrelated to either the sulfonamides or the antibiotics, the nitrofurans are derived from such waste products of the farm as corn cobs and oat hulls. Transformed into furfural by the action of sulfuric acid, these wastes become the material used by chemists to begin the synthesis of the nitrofurans.

Eldest of the nitrofurans is Furacin, or nitrofurazone: *5-nitro-2-furaldehyde semicarbazone*, which received its first clinical test in a military hospital in England in 1944. Researchers at Norwich at that time had already made numerous furan compounds and tested them for antibacterial activity *in vitro*. They had observed that those compounds containing a 5-nitro group were much more potent than related compounds, and they had synthesized another hundred such nitrofurans. The five most active of these had been selected for further study, when one of the doctors at this military hospital, having heard of the Norwich research on the nitrofurans, asked for help in controlling chronic wound infections unresponsive to conventional treatment. Supplies of the five different compounds were quickly forwarded across the ocean, with dramatic results. Nitrofurazone, applied to the wounds as Furacin Soluble Dressing, was particularly effective. A new chemotherapeutic agent had been created and found useful.

Extensive tests at hospitals in the United States soon substantiated the findings in England. Since then, the uses of Furacin have continually increased. As a soluble dressing and powder, it is used in the control of infections of burns, surgical wounds, skin grafts, and traumatic injuries. As vaginal suppositories, it is employed in the treatment of leukorrhea, cervicitis and vaginitis; as urethral suppositories, in the treatment of urethritis. Upper respiratory tract infections respond to the nasal preparation, while the ear solution produces positive antibacterial and deodorizing action in otitis. The ophthalmic liquid and ointment are prescribed for eye infections. And in the animal kingdom, the uses are still more varied; mixed with feed, it controls coccidiosis in chickens, swine and sheep, and enteritis in swine. Applied topically, it

promotes healing of wounds, burns, ulcers, eczema, otitis, bovine mastitis and other veterinary diseases.

Meanwhile, Eaton chemists are seeking other nitrofurans to combat internal infections. For eight years they scrutinized minutely the relationship of the nitrofurans to the life cycle of micro-organisms. Gradually they acquired more and more knowledge of the mechanisms by which certain bacteria live and multiply, of the equally delicate process by which the nitrofurans interfere with this multiplication and of the fate of nitrofurans in the body. At last they were able to design a nitrofuran molecule which was excreted in antibacterial concentrations in the urine. This molecule was the basis of Furadantin, brand of nitrofurantoin: N - (*5-nitro-2-furfurylidene*)-*1-aminohydantoin*, which is described by Eaton Laboratories as "chemically tailored for bacterial urinary tract infections."

Clinical reports have verified this description of the drug, the first nitrofuran for internal use. When Dr. Charles E. Friedgood and Dr. Anthony Danza in 1952 administered Furadantin to 22 patients with refractory Proteus infections of the urinary tract which had resisted previous antibiotic therapy, they observe complete clinical and bacteriological cures in 14 of the cases, while the remaining eight improved clinically although the urine cultures remained positive. Since then, Friedgood has observed and reported on another series of 100 patients, most of them with B. proteus infections. Writing in *International Record of Medicine and G.P. Clinics 167*:218 (Apr.) 1954, Dr. Friedgood and Dr. C. B. Ripstein of Maimonides Hospital, Brooklyn, N. Y., describe 68 clinical and laboratory cures and 28 clinical cures. "Furadantin," the authors state, "has been shown to be especially effective against the resistant Bacillus proteus and other gram-negative organisms that have failed to be controlled by antibiotics."

The literature on Furadantin is already extensive, although the product is new. Another large-scale clinical study of the drug was carried out by Dr. Grayson Carroll and Dr. Robert V. Brennan of St. Louis University Medical School, who published the results in the *Journal of Urology 71*:650 (May) 1954. They found Furadantin "particularly useful in the stubborn Proteus infections," and likewise effective in the majority of strains of Escherichia coli, Aerobacter aerogenes, Streptococcus faecalis and Alcaligenes sp. The compound appears in the urine within 30 minutes after ingestion. Forty-four per cent is recovered in the urine in eight hours and only four per cent is recovered in the feces, figures which indicated to the authors the drug's "peculiar adaptation for use in bacterial infections of the urinary tract."

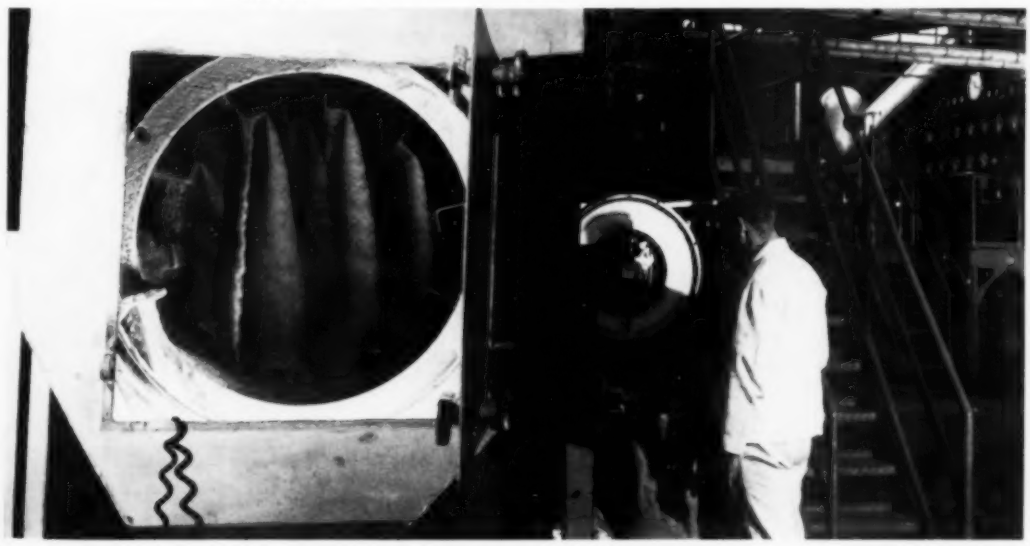
In a more recent study the same authors investigated the human blood level of Furadantin. Previously it had been thought that the blood level was negligible, but these investigators observed that when an initial dose of 200 mg. was given, the blood level could be sufficient to be clinically effective.

In still another study, Dr. B. A. Waisbren and Dr. William Crowley point out, in A.M.A. *Archives of Internal Medicine 95*:653 (May) 1955, that Furadantin "may be unique as a wide-spectrum antimicrobial agent that is bactericidal, relatively non-toxic, and does not invoke resistant mutants."

The same ability to attack particular organisms without disturbance of normal body functions and without invoking bacterial resistance has been observed in other nitrofuran products. The second nitrofuran to be produced commercially, nitrofurfuryl methyl ether, or Furaspor, is a fungicide with a wide spectrum. It is also sporicidal and bactericidal, so that it prevents fungal reinfection and secondary bacterial invasion. It is rarely irritating, and the pathogenic fungi against which it acts do not develop

(*Continued on page 708*)

The "Niagara Falls" in the equipment shown here are Furacin crystals drying—one step in the long complicated journey in development of the nitrofurans.



PRODUCT CONTROL*

by Sereck H. Fox, D.Sc.
VICE PRESIDENT, PHARMACEUTICAL RESEARCH & CONTROL, R. P. SCHERER CORPORATION

The Control Department is the backstop of safety. It guards against liability, contamination, misbranding, misrepresentation, instability of active ingredients, sub-standard raw material, excessive production costs; yet we hear the despairing voice, "I guess we will have to live with the damned Control Department." Live with it! Today, wise management will get into bed with it. It has been shown time and again that the practical, thoughtful and carefully calculated application of Control can be a gold mine.

What is your profit-take on an item which you must withdraw from the market a few months after you have introduced it, because of instability of an active ingredient, because of a label statement that doesn't quite gel with the facts, or some rather brassy advertising which was eructated by the official gullet, the latter being somewhat more horny than that of the gullible public. What about those many thousands of dollars you saved when the need for a more precise filling equipment was indicated by statistical control? These items are not merely responsibilities of the Control Department. These represent some of the solid gold assets of the firm which employs good Control.

Control has many responsibilities in the development of a new product. It must write satisfactory specifications for the raw materials to be used in the manufacture of this product. On countless occasions it has been shown that inadequate specifications have led to either chemical or physical instability, or a substandard product.

Control must develop and apply practical and adequate assay procedures for the active ingredients involved; but in that respect it must be able to defend itself on a sound, scientific basis that such assay is adequate and is practical and *does* produce valid data. The Control Department which produces data which may be quarreled over and found questionable by other and perhaps more scientific groups, not only lays itself open to criticism, but far more importantly, places its own company in the jeopardy of open-ring criticism and finally public rejection. The Control Department must be allowed to institute and maintain adequate methods of production control whether or not such control is operated by production. It must be allowed to participate in package design, the Semantics of label copy and in the revamp of the horrific and unrestrained gobbledegook of advertising copy.

Pharmaceutical executives have an old habit of saying, "Well, this time the damned Control Department will not throw cold water on my advertising copy." And, many times I have seen these same executives wake up later in stunned amazement at the fact that their advertising statements are being damned by the Federal Trade Commission as being untrue. Why is this? Repeatedly it has been shown that strong advertising copy may be written even

*Before American Pharmaceutical Manufacturers' Association, Los Angeles, Feb., 1956.

COURTESY CHAS. PFIZER & CO., INC.

after the innuendos, borderline falsies, etc. have been abstracted therefrom. And, that's all the Control Department's responsibility is in that respect at least —to keep the lies out and to see that substantially the copy is factual.

Control should be given the opportunity, at least, to criticize and give final approval to a new product label. I say *final approval* and I mean *final*,—after all changes have been made by others *and* by Control. If at the point of final approval Control thinks that still other changes should be made the proposed Master Label should circulate once again through Sales, Promotion and other departments concerned. After that trip around it should still arrive once again in Control. I think the reasons for this are obvious, but perhaps I should mention a few.

There are many of us who like to call ourselves Semanticists. We think that we know how to handle language. But let me tell you, there are not many Semanticists in the Sales Department nor in the Advertising Department. But there *must* be one in the Department of Label Control; just to keep the other Semanticists in line, so to speak.

The Semantics of label writing are severe. This little scrap of paper, the label, must contain in effect the specifications for the finished product, among other things. Each word employed on it becomes a power in itself.

Finally, it is the duty and responsibility of the Control Department to see that the product as sold conforms to its label specifications. Thus it is most important that such specifications be written exactly, and Semantically; that each word conveys the intended meaning; that misunderstanding on the part of the consumer is reduced to a minimum.

The development of package specifications may appear at first blush to be a function of the Art Department or whatever exists which might be called a Package Development Department. Perhaps it is the Development Laboratory. But suppose a container is developed for a specific end-use and that such end-use makes it mandatory that the container wall have a very low coefficient of moisture vapor transfer. Who should determine if this coefficient is low enough; obviously Control; and for the efficient operation of the job of package specification development, the Control Department should have been in on the job from the very beginning. So it should be with closures, cartons, shipping containers, etc.

If Control does not actually run the job, at least its participation in the development of technical specifications must be heavy and it should design and operate the testing procedure which will determine if an article conforms to the specifications for it.

Control should supervise the nasty business of filing New Drug Applications employing in part the data as to safety and/or efficacy received from the Medical Division.

Control should design and operate a stability study on a new product in partnership with the Development Laboratories before such product is released. This

(*Continued on page 709*)

High Speed Pharmaceutical Machinery

by K. B. Hollidge
EXEC. V.P., THE ARTHUR COLTON COMPANY

Like other industries in the United States today, the pharmaceutical industry seeks to lower production costs. Over the years this has been consistently achieved by installing automated specialized machinery that speeded handling, production, filling and packaging operations. Any further lowering of costs will be achieved, in my opinion, by further exploiting these same methods. This means higher speeds, and application of new automation principles that will speed materials handling techniques.

In many cases the packaging and the materials handling of a product after it has been produced are the factors that control production rate. Right now we are working with a company whose big problem is the handling of the product after they produce it on our equipment. In another case a company worked with us on the design of a high-speed machine. After they had the machine in operation, they had to work feverishly for several months to find a method of accepting the product from our equipment and putting it into containers.

There is one important aspect that the pharmaceutical industry must consider, however, if they are to achieve consistently lower production costs. That is that from top management on through the organization, they must readily accept new ideas in machine design. If the designers of pharmaceutical machines must create new machine designs within the framework of past design concepts, these machines will never achieve the ultimate in reducing production costs.

But in the meantime while we are waiting for these revolutionary new high speed machines to come off the drafting boards, the pharmaceutical industry can do much right now to cut production costs within the machines they now have. Many can run the machines now in their plants at much higher speeds. All too often we find that pharmaceutical machinery is not being operated at the maximum speed for which it is designed. Actually a machine that is run too slowly operates under overload conditions. As a result, it will not provide its useful wear life nor will it provide minimum production costs.

A short time ago, I had the opportunity of going through a plant with the Manufacturing Manager. I told him that I felt that his machines were running too slowly and that they certainly had been designed and built with a greater capacity in them. Then he said: "If I turn up the speed of one of these machines, it will be turned back by the time you and I go through the door." That was a sad commentary from Management. However, I have been in many plants and have found that statement to be true, although most Managements are not willing to make it.

Often we find that the operator has much to do with the causes for a machine being run too slowly. Sometimes it is poor process planning that has put a

*Before American Pharmaceutical Manufacturers' Association, Chicago, Feb., 1956.

high speed machine in a processing line that is not geared to the output possibilities of the high speed machine. But whatever the reason may be, it is a problem that the management of pharmaceutical firms should study and correct wherever possible in the interests of lowering costs.

While we are discussing these high speed machines that are run too slowly, it might be well here to tell how some leading pharmaceutical companies get maximum output from their machines—outputs that are often in excess of those proposed or suggested by the pharmaceutical machinery manufacturer.

The builder of a machine for the pharmaceutical industry is in business to design and build machinery. He is not in the business of carrying out long production programs nor to set up and operate pilot production lines. Thus it is the responsibility of the user of the equipment to put it in operation under conditions that will achieve maximum output. We have found from experience that the companies who get the most out of their machinery are those who have individuals in their plant who know the operation of the machine under production conditions even better than those of us who designed and created it. It thus behooves an organization that seeks maximum output achievement to train people in their own organizations to enable them to gain maximum knowledge about each individual piece of equipment.

We are often amazed to find companies that don't even have a good Crescent wrench is the plant. Those companies where the best production results with minimum downtime are achieved have at least one outstanding mechanic on the job with some imagination and interest in keeping the machines in good running order. High precision high speed machinery which is being built today does not vibrate and rattle. Consequently, it needs less servicing if lubricated properly. However, closely fitted running parts do require periodic, scheduled lubricating with a good lubricant.

Budgets in all companies should allow for buying of service parts each year. Employees should be expected to order parts before they are worn to a point where they cause other machine parts to wear and the general machine deterioration takes place. Why spend on additional capital equipment when a good program of parts replacement is so much cheaper, both in taxes and production costs? This same concept should apply to tooling.

We have known many companies that wear their tools to a point where the product coming off a rotary press for example was of inferior quality. In other cases, we have known companies that use tools until slight wear occurs. Then they have the tools repaired and probably even chrome-plate the dies so that they can be used for a considerably greater time. This, in our thinking is good economics.

COURTESY ARTHUR COLTON COMPANY

In one company this is achieved by assigning a team to a new machine. This team runs the machine in a pilot production development program until they know every kink and have exploited every detailed improvement that will give a consistent high output. If this team finds that the machine can be operated at rates of production beyond the capabilities of the present process line, immediate steps are taken to bring speed of the line up to that of the new machine. Then when the machine is put in operation, overall minimum production cost will be consistently achieved.

As an example, we have recently finished designing a machine requested by a company in accordance with their requirements for a precision liquid filler to keep up with the rest of their bottling line. There wasn't anything available on the market to do this particular job so we worked closely with them and now have developed a machine with the required filling speed.

(Continued on page 710)

Disposable Professional Time*

by Dorothy Noyes
VICE-PRESIDENT & TREASURER, NOYES & SPROUL, INC.

By way of explanation, "disposable professional time" is a term which Noyes & Sproul has coined to designate the time the physician allots to communications input from the pharmaceutical industry. According to latest findings, disposable professional time amounts to only 32 minutes per day.

Basically, pharmaceutical advertisers are competing for the physician's disposable time and attention. There isn't much that can be done to increase the total time he devotes to keeping informed so that techniques of communication must be improved.

Two broad principles become pretty clear from market searches over the past few years: the first is that the physician indicates he prefers to receive information about pharmaceutical products from a variety of channels; the second is that his preference for these channels often varies for *new* as distinguished from *established* preparations.

As concerns *detailing*, recent studies have shown that roughly half of all physicians responding to surveys think highly of detailing. This was true a few years ago and still is today. A disturbing element in detailing as a means of communication to the doctor is the cost. While upwards of 100 million dollars per year is spent by our industry for this form of communication—perhaps four times as much as for directy mail and eight times as much as for journal advertisements—who knows whether it is actually worth this expenditure?

As concerns *direct mail*, the significant fact that emerges from the survey is that while direct mail is an important channel of communication, its influence appears to be waning, more unpleasant side-reactions being elicited by direct mail than by any other form of communication.

Advertising in medical journals has held up well, particularly as a source of information for established products, while articles in medical journals are effective for information about both new and established products.

The physician was questioned concerning his preference for ten different channels for communicating information on new and established preparations, with the findings as tabulated:

MD Preferences for Various Communications Methods

		NEW PBODUCTS
1.	Detailing	65 per cent
2.	Journal articles	59 per cent
3.	Convention displays	44 per cent
4.	Journal advertisements	38 per cent
5.	Direct mail	29 per cent
6.	Symposiums	25 per cent
7.	Medical newspapers	24 per cent
8.	Teaching films	18 per cent
9.	Closed circuit TV	15 per cent
10.	House organs	13 per cent
		ESTABLISHED PRODUCTS
1.	Detailing	50 per cent
2.	Journal advertisements	50 per cent
3.	Journal articles	49 per cent
4.	Convention displays	38 per cent
5.	Direct mail	26 per cent
6.	Symposiums	22 per cent
7.	Medical newspapers	22 per cent
8.	Teaching films	14 per cent
9.	House organs	14 per cent
10.	Closed circuit TV	12 per cent

On the average, doctors now spend fewer hours per week with detail men, journal ads and direct mail and an interesting sidelight is the fact that whereas in 1952 no doctors reported not seeing detail men or not reading advertising, in 1956, nine per cent see no detail men, 26 per cent read no journal ads and 40 per cent read no direct mail advertising.

The time the average MD feels he can spare from the pressure of other activities to devote to the major forms of medical communications totals 5½ hours per week per individual, more than half of which is devoted to journal articles—with about two hours and forty minutes per week for receiving strictly commercial input. Are we doing as much as we can and should to alleviate the time pressure and the communications saturation afflicting our prospect, the physician? We

(*Continued on page 699*)

*Abstract of an address given before the Pharmaceutical Advertising Club, New York City, April 5, 1956.

New Sales for AEROSOL

by Frazer V. Sinclair

Some people in this industry, that is cosmetic and perfume manufacturers, believe that aerosol packaging holds for the future fascinating promises for industry expansion. They are basing this opinion on their own practical experience with aerosol.

It is true that this experience is limited both in scope and time and yet these men insist that the reaction they have received so far is enthusiastic and convincing.

"Itchy Fingers" are the words used by one cologne manufacturer whom we recently talked to. This man has had a cologne packaged in aerosol on the market for several months. When this cologne aerosol package was first on the market, the manufacturer was uncertain both as to the retail and consumer acceptance. During the last few months he made a continuing survey which probably would not be called broad or conclusive by a scientific marketing expert, but it was conclusive enough to satisfy this manufacturer that he need worry no further as to the acceptance of his cologne by both the trade and the public.

This manufacturer repeated to us the words, "Itchy Fingers" which he said seemed to come up repeatedly in talking to retail sales girls and in talking to consumers. He said that he was told both in the retail trade by the sales girls, and by the women who bought the aerosol cologne, that they liked to pick up the package, that they liked to use it, and that they were using it much more frequently than they normally used the liquid cologne in a bottle.

We talked with several other cosmetic and perfume manufacturers and found that this same viewpoint was developing as part of their experiences. There was general conviction among these manufacturers that the aerosol package, because of its convenience in use, and in many cases, because of its superior application of the products, would broaden the market for their products. By broadening the market, they meant that they were convinced they would gain new users for their product who were normally not users, and that the people who did use their product, would tend to use it more frequently.

Perhaps the most interesting viewpoint of this survey was that we found general conviction that a third possible plus for cosmetic and perfume expansion was being credited to aerosol. This plus was a general belief that people using aerosol would use more of the product on each application, resulting in the interval between the sale of the package and the opportunity for a repeat sale would being lessened.

We repeat that this was not in any sense a conclusive survey. These are the findings of several manufac-

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UNIVERSALLY RECOGNIZED FOR PACKAGING SUPERIORITY

Depend on Spra-Tainer for outstanding achievements in aerosol packaging. For example, in the last Chemical Specialties Manufacturers Association competition, Spra-Tainer-packaged products won first awards in no less than four classifications!

Reasons for Spra-Tainer leadership:

✓ Seamless can construction

✓ Art and design service now available to Crown customers

C.S.M.A. First Award
Miscellaneous Household Products
Marlowe Chemical Co.,
New York, N. Y.

C.S.M.A. First Award
Shave Creams
Colgate-Palmolive Co.,
Jersey City, N. J.

Crown . . . for Packaging Progress

Ask your Crown Sales representatives about Better Packaging and Better Service by Crown.

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turers who recently ventured into aerosol with new cosmetic products, particularly cologne. The interesting part of the survey is that these manufacturers are firmly convinced that aerosol will expand the market for cosmetic products and that they have had this opinion confirmed by what they have seen happen in the retail store and by what they have discovered in talking to consumers.

If, in fact, aerosol can bring to the marketing of a wide variety of products in this trade three pluses for market expansion, that is, (1) more users, (2) more frequency in use, and (3) more of the product consumed with each application, then, in fact, aerosol will have a notable future in this industry.

Aerosol expansion has already been a potent one. The total production of all types of aerosol has skyrocketed from 5,000,000 units in 1947 to 230,000,000 million units in 1955. Such products as lather shaving creams, hair lacquers, and insecticides in aerosol have surpassed the sale of these same items offered in other packages or forms of dispensers.

A recent consumer market survey by Du Pont, a large supplier of the chemical propellents which make aerosol possible, called "Inside the Consumer Aerosol Market," lists the following products of this industry now packaged in aerosol dispensers: Room Deodorant, Hair Spray or Fixative, Shaving Cream, Hair Conditioner or Dressing, Personal Deodorant, Perfume, Cologne and Toilet Warer, Hand Lotion, Sun Tan Lotion, Hair Shampoo and Burn Spray.

Another producer of aerosol propellents, that is the

General Chemical Division, Allied Chemical & Dye Corp., in a recent contest for "New Aerosol Ideas" found that many different types of aerosol products may be developed in the next few years. Leading suggestions for this industry include Baby Oils, Rash Preventives, Hair Dressing for Men, and Wound Antiseptics. Other suggestions were Bubble Bath, Bronchial Spray, Cough Syrup, Eye Glass Cleaner, Nail Polish, Oral Antiseptics, Iodine Dispensers, etc. One particularly choice suggestion was a vermouth aerosol for the extra dry martini.

Because of the great amount of research available in this trade for adapting cosmetics and toilet preparations and the various types of fragrance to aerosol, and because of new developments in propellents, improvements in the aerosol valve and particularly new opportunities for practically an unlimited range of choice in package design and color, the aerosol dispenser will undoubtedly find many new applications in this industry during the next year or two. As one propellent producer said, "Any product which can be sprayed, brushed, daubed or dusted is a likely prospect for aerosol packaging." Add to this the substantial and powerful appeal of marketing expansion, that is in the three ways we have mentioned—expansion in the number of users, expansion in the frequency of use, and expansion in the amount of the product consumed with each application—and this makes aerosol a package and a method of product dispensing or application to be watched with the keenest interest by the members of this industry.

Why plastic packages sell more drugs and cosmetics

Cases made of Monsanto Vuepak "reach out" for customer attention!

How an inexpensive "extra" can stimulate impulse buying and build profits is neatly demonstrated by these two handsome packages fabricated of Monsanto Vuepak.

A high-style carrying case, colorfully decorated with a carnival design, gives unique display to a polyethylene squeeze bottle which dispenses liquid cleansing cream.

A transparent container which "tags" the contents with a brief selling message increases the desirability of a conventional facial sponge.

Monsanto cellulose acetate – tradenamed Vuepak–is proving a profitable packaging material for hundreds of other drug and cosmetic items. It is clear as crystal. It is light in weight to cut down shipping expense – yet has exceptional rigidity.

Vuepak forms at low cost into distinctive shapes, and combines readily with either metal or cardboard. It can be embossed or imprinted with standard inks.

The two Helena Rubinstein packages pictured are made of Vuepak by American Cellubox Corporation, Long Island City, New York.

Need help? Monsanto will gladly put you in touch with specialists in plastics packaging who will work with you on your own packaging requirements. Write Monsanto Chemical Company, Plastics Division, Room 1235, Springfield 2, Mass.

Talk to Monsanto about packaging your products in

VUEPAK®

cellulose acetate

MONSANTO

Monsanto also supplies styrene and polyethylene for profitable packaging.

Set-up Paper Box AWARDS

The 1956 Sixth Annual Set-Up Paper Box Competition produced 85 award winners from the equivalent of 2600 entries. Seven packaging experts judged entries in 21 categories stressing the merchandising quality of the boxes. Also they selected those boxes which deserved special recognition for superiority in display, construction, and surface design. There were 25 first awards given, 24 second, and 36 honorable mention. The contest judges noted a decided trend toward higher quality packaging, and a growing adoption of the versatile set-up box for display, protection, and storage of a widening variety of products. Among other industries, set-up boxes appear to be receiving wider play from the drug industry.

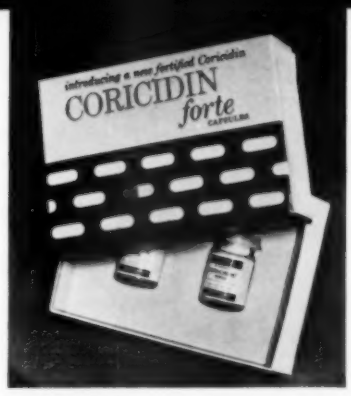
First Award in Drugs, Chemicals, and Pharmaceuticals went to Mead Johnson & Co. for its vitamin presentation box which was developed for presentation to doctors of a new vitamin family of products. Art and color designate the appropriate vitamin preparation for each particular age group of children up to 10 years old.

First Award in Cosmetics, and Second Award in Best Display went to Lucien LeLong for a perfume assortment gift box. Five different bottles of perfume are uniquely packaged in a combination gift and display box. Triple layers of protective board are used in the construction of the outer box which employs brass hinged side trays and a die cut center tray revealing the featured perfume.

First Award in Mailing Boxes went to Schering Corporation for their Coricidin Mailer to be sent to doctors to introduce a new product. The bottom of the thumb-cut full telescope mailer is unprinted to receive an addressed label, while the lid carries the manufacturer's announcement in bold but brief statement in three colors.

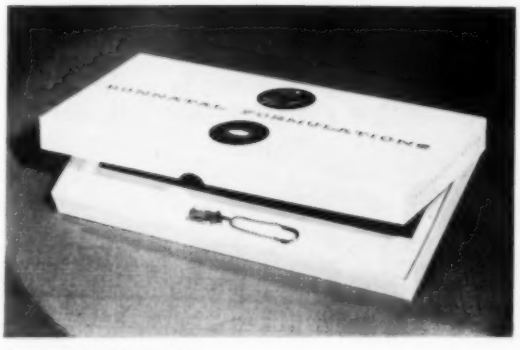
First Award in Transparent Boxes and Honorable Mention in Cosmetics went to Coty, Inc., for its Sirocco Perfume Box. Modern rectangular lines of the transparent box are smartly developed by combining small rigid boxes of gold and forest green with a slim acetate sleeve. Gold elastic ribbon holds the units together. Perfume bottle is baled in matching gold and green.

Second Award in Drugs, Chemicals, and Pharmaceuticals went to A. H. Robins Co. for their Donnatal Formulations Box, which achieves maximum presentation and display for a physician's sample. "Professional" treatment of the cover is restrained, yet informative. Inside, a black scored and die-cut insert accentuates the colorful plastic envelopes of pharma-



Coricidin Mailer

Sirocco Perfume Box



Donnatal Formulations Box

Mary Chess Perfume Gift Box

Burroughs Wellcome Mailing Boxes

Salt Tablet Dispensing Box

For precision and versatility—choose
OWENS-ILLINOIS for PLASTICS

For example—
Fitments for metal containers (spouts and caps for aerosol shaving soap)
For example—
Fitments for glass nursery bottles
For example—
Cosmetic containers
For example—
Specialty items—Tire valve and battery caps

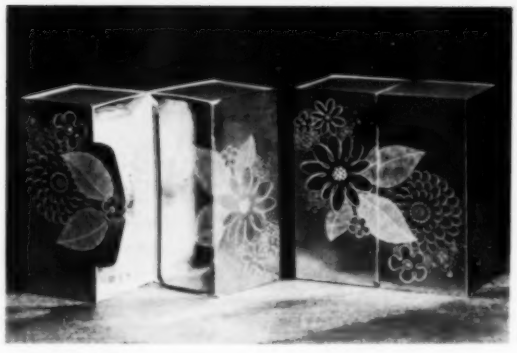
Owens-Illinois packaging know-how and high-quality standards offer you the *finest* in molding plastic facilities . . . Injection molding . . . Compression molding . . . A complete range in plastics for packaging, for specialties.

Branch Offices:

Albany . . . New York	Columbus . . . Ohio	Memphis . . . Tennessee	Portland . . . Oregon
Atlanta . . . Georgia	Dallas . . . Texas	Milwaukee . . . Wisconsin	Richmond . . . Virginia
Baltimore . . . Maryland	Denver . . . Colorado	Nashville . . . Tennessee	Rochester . . . New York
Birmingham . . . Alabama	Detroit . . . Michigan	New Orleans . . . Louisiana	St. Louis . . . Missouri
Boston . . . Massachusetts	Fresno . . . California	New York . . . New York	St. Paul . . . Minnesota
Buffalo . . . New York	Houston . . . Texas	Oakland . . . California	Salt Lake City . . . Utah
Charleston . . . West Virginia	Indianapolis . . . Indiana	Oklahoma City . . . Oklahoma	San Francisco . . . California
Charlotte . . . North Carolina	Jacksonville . . . Florida	Omaha . . . Nebraska	Seattle . . . Washington
Chicago . . . Illinois	Kansas City . . . Missouri	Peoria . . . Illinois	Toledo . . . Ohio
Cincinnati . . . Ohio	Los Angeles . . . California	Philadelphia . . . Pennsylvania	Yakima . . . Washington
Cleveland . . . Ohio	Louisville . . . Kentucky	Pittsburgh . . . Pennsylvania	

PRECISION PLASTICS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO



Avon Toiletries Box

Drene Shampoo Box

ceuticals while firmly holding them to a platform.

Second Award in Cosmetics and Honorable Mention in Best Display Box went to Mary Chess for her Perfume Gift Box. Cleverly utilizing the brand name to create an uniquely packaged set of perfumes, this hinged lid box opens to reveal sixteen perfume-bottle chess men displayed in white velvet. The box is covered throughout with heavy embossed gold foil paper.

Second Award in Mailing Boxes went to Burroughs Wellcome & Co. (U.S.A.) for their look-alike drug mailers to physicians which capitalize on the fact "repetition teaches." Every mailer from B.W. can be matched in mind with prior mailings.

Honorable Mention in Drug, Chemicals, and Pharmaceuticals went to A. E. Halperin Co. for their Salt Tablet Dispensing Boxes which are durable set-up boxes equipped with plastic dispensers which replace metal containers of the same design. Tablets are fed singly to the dispensing knob.

Honorable Mention in Cosmetic went to Avon Products, Inc., for their Avon Toiletries Box which contains two set-up trays, each wrapped in pink coated paper, and these in turn are covered by gold foil bending board to form a center-opening box. Clever tab lock secures the unit in a closed position.

Honorable Mention in Soap went to The Procter & Gamble Co. for their Drene Shampoo Box. The letter D stamped in gold on glossy, yet black paper is an invitation to the curious to raise the lid. Inside, the modernistically styled shampoo bottle is high-lighted by a covering of gold foil on the base.

Honorable Mention in Best Surface Design and Execution went to The J. R. Watkins Co. for two of their packages—Infants Toiletries Box and Bath Salts Box. The Infant Toiletries Box uses soft pastel baby colors on a high glass white background and thus conveys an impression of cleanliness to the package. The Bath Salts Box is an oval drum with a metal bottom printed in light blue. Floral design is in white, dark blue and gold blends smoothly with the background. Brand name is prominent in white on the dark blue lid.

Honorable Mention in Surface Design went to Prince Matchabelli, Inc., for their Spring Fancy Powder Box which is treated with a graceful, yet bold and buoyant block design printed in three colors on a coated wrap, creating impulse sales appeal to sell the product.

Bath Salts Box

Infants Toiletries Box

Spring Fancy Powder Box

Packaging and Selling

More Hope for Small Business

In our February issue, we had a feature article "Hope for Small Business" which attempted to analyze some of the ways in which a small businessman might hold his own without being overwhelmed by Big Business as we know it today.

Shortly after this article appeared, we were interested to read in the "Journal of Commerce" some words by George Romney, President, American Motors Corp. Although Mr. Romney's corporation would be a huge affair in many other industries, it is in fact, from the viewpoint of production, distribution, availability of capital, and other factors, quite a small outfit in its own industry.

Mr. Romney says in this article, "In our competitive approach to the automobile business, we believe that we will serve the public's interest best, and therefore succeed most, first of all by expanding the buyer's freedom of choice and secondly through product innovations that establish new standards of value." This is precisely what we meant when we stated that the small businessman must specialize, and specialize in a product or field that is not a strong point of the big fellow. Mr. Romney expresses this specifically when he says, "The obvious way to achieve the former is to build a product that the Big Three does not have, and from a strategic point of view this means that we are not going to try to butt our heads against the Big Three wall but we're going to outflank them." By this Mr. Romney means the Rambler.

Mr. Romney then states another difficulty of the little fellow. That is when the little fellow has something good or different, his discouraging problem is to make himself heard. Mr. Romney says, "I think we are also handicapped a bit by the fact that all of us are so cynically conditioned by advertising claims and cliches." In other words, the public is cynical, but advertising has shown, as in the case of cigarette advertising, that whereas the majority of the public does not believe the advertising claims and cynically reject them, nevertheless, when enough million dollars are spent on advertising, it conditions their mind about that cigarette at the point of sale just as if they did believe the advertising. Said Mr. Romney, "The little fellow may lead in innovation but he gets little public credit for it. Most of the reason for this, of course, is the enormous power of the advertising and merchandising budgets of the biggest companies."

Mr. Romney continues, "Fortunately, we don't have to convince everyone in order to be successful. We're not out after the crowd. Just give us 300,000-350,000 of the intelligensia. We don't need the volume of the Big Three to match and exceed their product values, and to operate profitably.

Many people in business, even many businessmen are hypnotized by the myth of mass production and all of its supposed tremendous cost saving advantages; but, according to Mr. Romney, in the mass production of automobiles, optimum tool use can be reached around 180,000 to 200,000 units annually. Beyond that, tools and facilities must be duplicated to a large extent and integration can be carried only so far. In fact, according to Mr. Romney, the concentration of production in their Wisconsin plant with a capacity of around 400,000 cars, that is about seven or eight per cent of the industry's production, make these plants among the largest and most efficient in the business. Automation is a decidedly over-rated word, according to Mr. Romney. He thinks that too much of it will make the big fellow more muscle bound.

In other words, here is a man who is making quite a national reputation for himself as a business leader in what is considered in big business circles a small business. Certainly, no man in America is more hemmed in with tough, overpowering and overwhelming competition, and yet he is far from discouraged because he is specializing in product, in method of production, in marketing together with an ingenuity, in doing what the big fellow finds hard to do.

Growing Hair Spray

Either a new chemical or a new method of dispensing can bring about an expanding market. When the two are combined, there is every reason to expect something rather spectacular in the way of expanding sales. The new chemical PVP, which we won't attempt to spell out, is the basic chemical ingredient in the new hair sprays. The new dispenser, of course, is aerosol. When this product first came on the market in 1952 about 4,000,000 cans of aerosol were sold. The following year sales climbed to a figure reported to be about 15,000,000 cans, and in 1955, industry reports put this sale at 55,000,000 cans. Some cosmetic manufacturers, so impressed by this dynamic growth are thinking of a market potential up to 100,000,000 cans. This is not an impossible figure with the present American population and the way hair products are used. There is also a strong suspicion growing that Papa is a very substantial user of Mama's Hair Spray.

New Pharmaceutical Service

A. C. Nielsen Company is opening a new marketing research service to the pharmaceutical industry, known as the Nielsen Pharmaceutical Index. With the survey, manufacturers will have available reports of consumer sales, retail markets, percentage of stock

and out-of-stock, and other information for forming marketing divisions.

Why Women Shop

Gordon Lippincott of the New York technical design company, Lippincott and Margulies, told the variety store merchandisers recently "The variety store is lagging behind in today's merchandising methods. If operators continue to ignore the marketing techniques utilized by other chain stores, the variety store will find itself squeezed out."

While we agree thoroughly with Mr. Lippincott's statement that variety stores look alike, the window displays look alike and their interior counter layouts are unimaginative, and that certainly it is time that the variety store did something about this to develop a unique, efficient, modern store personality, we find it very difficult to agree with his basic analysis of store problems today.

First of all, Mr. Lippincott thinks that the chief characteristic of today's average shopper is sustained consciousness of style, that she is able, willing and seeking to buy it. He thinks that food supermarket operators are taking advantage of this. It is true that some of the notable big food chains have become extravaganzas of interior style, but we are still betting on the philosophy of the A&P, which insists upon maintaining a group of stores which are simply and purely efficient food outlets.

Mr. Lippincott thinks that the character of today's shopping experience is that it has become a bothersome chore. While we agree with his point that stores can be made more alluring, we still think that for millions of American women, even the large majority of American women, shopping is the high point of social experience in the day or the week. Mr. Lippincott's third point is the traditional view of the surburban shopping center. We think the surburban shopping center is very largely the result of growth and shift of population during this era of 30-year mortgages, no down payment. This huge mass movement of consumers to the suburbs created a vacuum which had to be filled by retailers. The phenomena, if there is one, is not in distribution, but in the social causes which brought about this growth and shift of population. We have yet to see how this will stabilize and whether the big central shopping district of the metropolitan center will lose its historical lure for the woman in shopping and entertainment.

Business or Pharmacy

Will the growth of self services in many drug stores, as a competitive measure or even for plain survival tend to aggravate a kind of split personality which has been developing among many pharmacists.

As a sample of the frustration of the druggist, Health Information Foundation in a recent survey asked pharmacists, "Do you feel that the general public regards the pharmacist mainly as a professional man or mainly as a business man? Forty-eight per cent of the pharmacists thought they were considered professional men and 43 per cent believe the public looks on them as business men.

Fragrance Foundation Promotion

April 19th will be the start of the test television advertising campaign to promote the daily use of perfume. This campaign, which will run continuously in the cities of Richmond, Virginia, Columbus, Ohio and Denver, Colorado will be carried on local television stations five times a week with appropriate spot announcements. The theme for the campaign is "Perfume is for wearing . . . every day."

Big Poly Bottle

Polyethylene is appearing in a new package form of interest to this industry. We hear that The American Agile Corporation is putting out a "King-Size" bottle which measures 53 inches long overall. These bottles are made of seamless cast polyethylene tubing, 48 inches long in the shell, with an outer diameter of 4¾ inches. The polyethylene bottom is welded to one end of the tube and a molded cone having a screw cap on the other.

Packaging Show

One of the impressions of the Packaging Show at Atlantic City is the wide variety of new machines and equipment designed either with the principle of automation or something closely approaching it.

This show is far more interesting to the factory man in charge of packaging production than it is to the packaging buyer or packaging designer and it is infinitely more interesting to the food industry, candy, soft drink, etc., than it is to cosmetics or pharmaceuticals. In fact, the show could very largely be called a Packaging, Machinery and Shipping Show, with just a sprinkling of other displays.

It would seem from this show that the packaging people believe that the future of retailing is in self

FLUID'S
Latest achievement in
*controlled packaging**

An excitingly new member has been added to the "FLUID" family of "contract packaging" — polyethylene plastic tubes and bottles by Bradley Container Corporation.

These versatile containers include most of the advantages of glass and metal packages. In addition, they are lightweight, unbreakable, chemically inert, and are easy-to-use squeeze type dispensers.

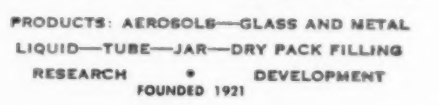
FLUID'S modern versatile equipment now includes the latest in automatic machinery for filling and sealing of these Bradley containers.

Let FLUID'S controlled packaging methods satisfy your requirements — whether they are for liquid filling, aerosol loading, or these latest plastic tube applications.

"First in Contract Packaging"

FLUID
CHEMICAL COMPANY INC.

879 MT. PROSPECT AVE. • NEWARK, N. J.
Telephone HUmboldt 5-2880



PRODUCTS: AEROSOLS—GLASS AND METAL
LIQUID—TUBE—JAR—DRY PACK FILLING
RESEARCH • DEVELOPMENT
FOUNDED 1921

service, and they are going all out in packaging automation to facilitate this kind of distribution.

As just an additional thought in connection with some of the displays in this show, which offers so many promises of substantially reducing the cost of production, we wonder just how much of the savings from this production research will go to the consumer and how much of it will go into advertising and increased promotion expenses. Our bet, based on fairly broad experience, is that every time anyone comes up with something new that will cut the cost of production, that 95 per cent of this saving is immediately spent on more sales and advertising promotion.

Low Pressure Selling

In this age of sales and advertising clamor, we hear every once in a while a soft squeak about the merits of "Low Pressure Selling." The pleas for this method of merchandising have appeared mostly in the journals of the business colleges of our leading universities. We hardly ever expected to hear this method of selling presented at a place like the convention of the Association of National Advertisers and even far less from someone like the director of advertising of CBS, Columbia and yet miracle of miracles, this is just what happened at this convention.

Gerald Light, the Director of Advertising and Sales Promotion for CBS, Columbia stated that the "soft sell often sells better than the other type." "You hear it said that hard sell ads relate a sense of urgency" said Mr. Light to his audience of advertising men of the country's big spenders. "I often feel that they radiate a sense of desperation instead, the advertiser's desperation to sell his customer's products. They don't sell hard, they merely breathe hard."

We seem to sense in this country a growing cynical attitude toward a good deal of advertising, and present day merchandising methods, and we definitely feel that there is a growing ability on the part of the TV watchers to suspend their minds during commercials and to insulate their responses. It is almost like someone living besides Niagara Falls, who soon finds that he is immune to the clamor. This is a calculated brain washing of the American public by American big business, a phenomena of these times which may be headed for drastic revision.

This industry has a great many examples of low pressure selling. To a large extent, the perfume industry has grown and prospered by this type of operation. Many of the famous names in treatment lines have grown in this way. Certainly, so far as advertising and pressure upon the consumer goes, we have conspicuous names for low pressure selling, such as Charles of the Ritz. One still small but growing company, namely Jean Nate, has been a noticeable practitioner of this art.

And, while we are talking about low pressure selling, we can hardly forget the name of Fabergé, a case history in low pressure selling which we offer to the solons of advertising and the marketing fraternity, as this industry's candidate to prove that low pressure selling can certainly pay.

Notes and Comments

Few people give any thought to the fact that this industry has a small but contributing responsibility for the so-called plight of the farmer today. This plight, which is basically overproduction, is caused not only by an increasing technical ability to produce more per acre, but just as much by the changing diet habits of the American public.

For instance, in 1955, the 164.5 million Americans consumed almost the same quantity of wheat for food as 91 million Americans did in 1909.

We've remarked before that medical research will continue to drastically change the food habits of the American people, and in such things as calories, cholesterol and things to come, will have a very ponderable effect on our agricultural economy.

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We hear that Cornell University's Dairy Department has developed a strawberry and raspberry flavored milk as part of a continued program to increase consumption by changing its flavor.

Now, all we need to hear is that Pepsi-Cola is broadening its line with a milk flavored soft drink.

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Among all the advertising that has ever puzzled and also frustrated the professionals in the business, Breck advertising has a distinguished record. As the creative work of the Springfield artist and advertising agency man, Charles Sheldon, this advertising has been uniquely different and individualistic, and has certainly been an outstanding example of low pressure selling in advertising. Although the advertising which this moderate sized company can put behind the Breck shampoo and other products is very small compared to the advertising expenditures of some of its massive competitors, notably Procter & Gamble and Colgate, it has valiantly held its own and probably outshot its competitors, page by page, by a wide margin.

In a number of succeeding Starch Reports, Breck advertising has either led in reader interest and reader memory or been among the first two or three in magazines tested. In a recent Starch test of the "Ladies Home Journal," the Breck page took second place among the nearly 40 full pages in color used in this magazine, and far outdistanced in reader attention any of a competitive character.

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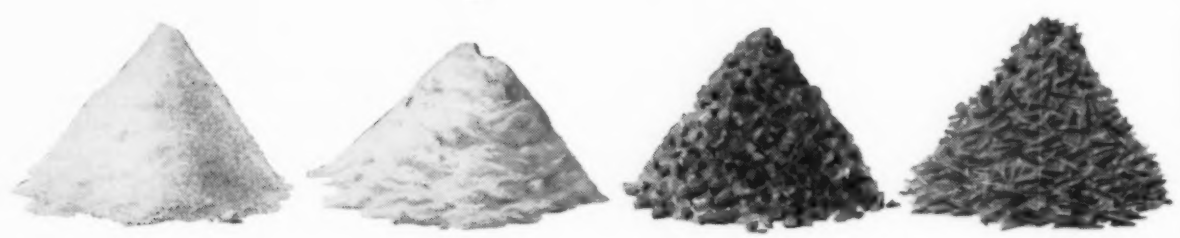
Perfume and fragrance is finding an increasing industrial market with many curious and interesting uses, either to give a positive value or to neutralize and overcome an unpleasant odor. However, in the one field in which we would clearly expect a rapid expansion of other uses, that is as sales additive or influence, there seems to be little progress made. This is surprising because, according to the new theories of consumer motivation, which are being applied so widely to selling, consumer emotions and an appeal to the senses, are basic in selling.

Fragrances have been used by many trades from gift cards, towels, infants wear and many other products. This selling aid made at first a very favorable impression or attracted notice at the point of sale. So far as we know, none of these experiments have become a continuous policy of a seller.

Quite a few companies have experimented with per-

take a powder . . .



any powder

put it in an I-L Powder-Pack and you have a profitable sales item every time.

Why?

Because I-L Powder-Packs are saleable —convenient—protective and economical.

For speed of delivery—for real, overall economy there is no finer powder package in the world. Complete and certain protection—instant and favorable sales reaction can be provided your powder products . . . and with less waste, too.

I-L Powder-Packs can be yours in single units, in tandem packs or in strips. You can have your powder packaged in small or large Powder-Packs—up to 6" square . . . in rigidly controlled volumes ranging from a fraction of an ounce to over 2 ounces. You can print your sales message front and back—in colors of your choice. You can have your Powder-Packs stamped with your batch number, code number or expiration date, in any color. And, you can have a Powder-Pack that is designed and engineered by Ivers-Lee exclusively for your product.

IVERS UNIT PACKAGING LEE CO.
215 CENTRAL AVENUE NEWARK, NEW JERSEY

Creators of a thousand and one different types of Unit-Packages for tablets, capsules, triturates, powders, creams and unusual products during 34 years of Packaging Service.

fume advertisements and these, too, have had a short life.

Just recently, a scented insert was put in "American Motel" and "Hotel Management" by Dial Soap. According to reports, the heavy paper inserts were impregnated with perfume that smelled like dial soap. However, the paper stock did not retain the scent. According to one of Dial's executives, some of the inserts apparently retained the perfume, but for the most part the scented heavy paper just didn't work.

However, the company that printed the inserts advised that the perfume can still be detected in the plant more than two months after the printing.

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Because of the $64,000 question, this industry has provided a case history, which is causing extensive discussion in almost every professional circle from universities to cocktail lounges.

The sociologists, psychiatrists, behavior experts, etc. are thoroughly aroused at the effect on individuals of society discovering that ordinary people just like themselves can be so extraordinary.

Tax experts and politicians are quite interested in the fact that for the first time in history, the people in the low income brackets are obtaining a clear understanding of the extra heavy burden of taxes upon the high income brackets, and because it could happen to them, are beginning to resent it. Business men, research men, and particularly Wall Streeters, are beginning to understand more clearly than ever before that the most powerful factor in building a business today can be advertising. The Moguls of finance down in Wall Street who have always sneered at the cosmetic business and considered it secondary, particularly from the viewpoint of financial growth and profits, are beginning to change their minds. Now, more than anything that has happened in many years, the $64,000 question has convinced bankers and brokers and the kind of men who sit on the board of directors and OK budgets, that advertising pays, that it pays to spend big money for advertising, and that in appraising management, it is important to consider management's flair for advertising.

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This trade is often accused of putting an exorbitant mark-up on its goods to establish the retail price level. In particular, the cosmetic industry has a complex about this sort of thing.

For this reason, we are interested in the recent announcement of Westinghouse upping their retail prices for warehousing drug chains to 45 per cent for a $3,500 list order to 49 per cent for a $100,000 list order.

We are previously surprised to discover that General Electric's light globes give the highest discount in the grocery supermarkets.

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Fashion experts have a well defined formula for the fashion cycle. This cycle has as its introductory phase the inner circle of a highly discriminating fashion lovers residing in or near the metropolitan fashion centers and from that point the cycle progresses geographically and population-wise until its exhaustion some three to five years later in the villages and on the farms.

It is truly amazing how widespread is the appeal of fashion, industry-wise in America. Probably the biggest employers of fashion experts today, after the leading apparel manufacturers, are the automobile manufacturers. We noted recently the dilemma of an American woman who said that the new modern American automobiles, with their bewildering variety of colors, had created a major problem for her in avoiding colors that clashed with the automobiles of her friends.

Now, we discover that the pharmaceutical industry is becoming fashion conscious and that one of the first, if not the first, of these companies to bow to this basic American social complex is that highly ethical and conservative company, Eli Lilly. According to a recent quote from Lilly's Chief of Press Relations, we find "Pulvules' Compren" are supplied in pastel shades of green and yellow, in keeping with mothers' growing preference for these colors in infant wear.

Just where "Pulvules" or for that matter, pills and tablets fit into the fashion cycle, we hesitate to guess.

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The fact that flavor as well as color has become an essential part of modern medicine, particularly among the ethical products prescribed by physicians, is one of the notable changes in the field of selling which has been developing among ethical pharmaceutical manufacturers.

As an example, here is a quote from a recent bulletin of Chas. Pfizer & Co., Inc., "When your physician prescribes an antibiotic to treat an infectious disease, he considers many factors, not the least of which is your taste reaction. That's one reason why the new Pfizer antibiotic, Tetrabon, with its palate-pleasing fruit flavor is being enthusiastically received by the medical profession and patient alike. It is truly in 'good taste' wherever it is prescribed." Further on in this release is this quote, "In the vitamin-fortified antibiotic, Tetrabon SF our pharmaceutical research and development group has incorporated a tempting fruit-mint flavor appealing to patients of all ages."

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Here is some marketing material on variety stores compiled by the "Variety Store Merchandiser."

Variety store sales passed the 3½ billion dollars mark in 1955, with a sales increase of nine per cent although the number of store units were off by 230 stores.

An almost certain down trend in profit margins were reversed. There is considerable emphasis on self service and the major chains are moving into shopping-centers in a big way.

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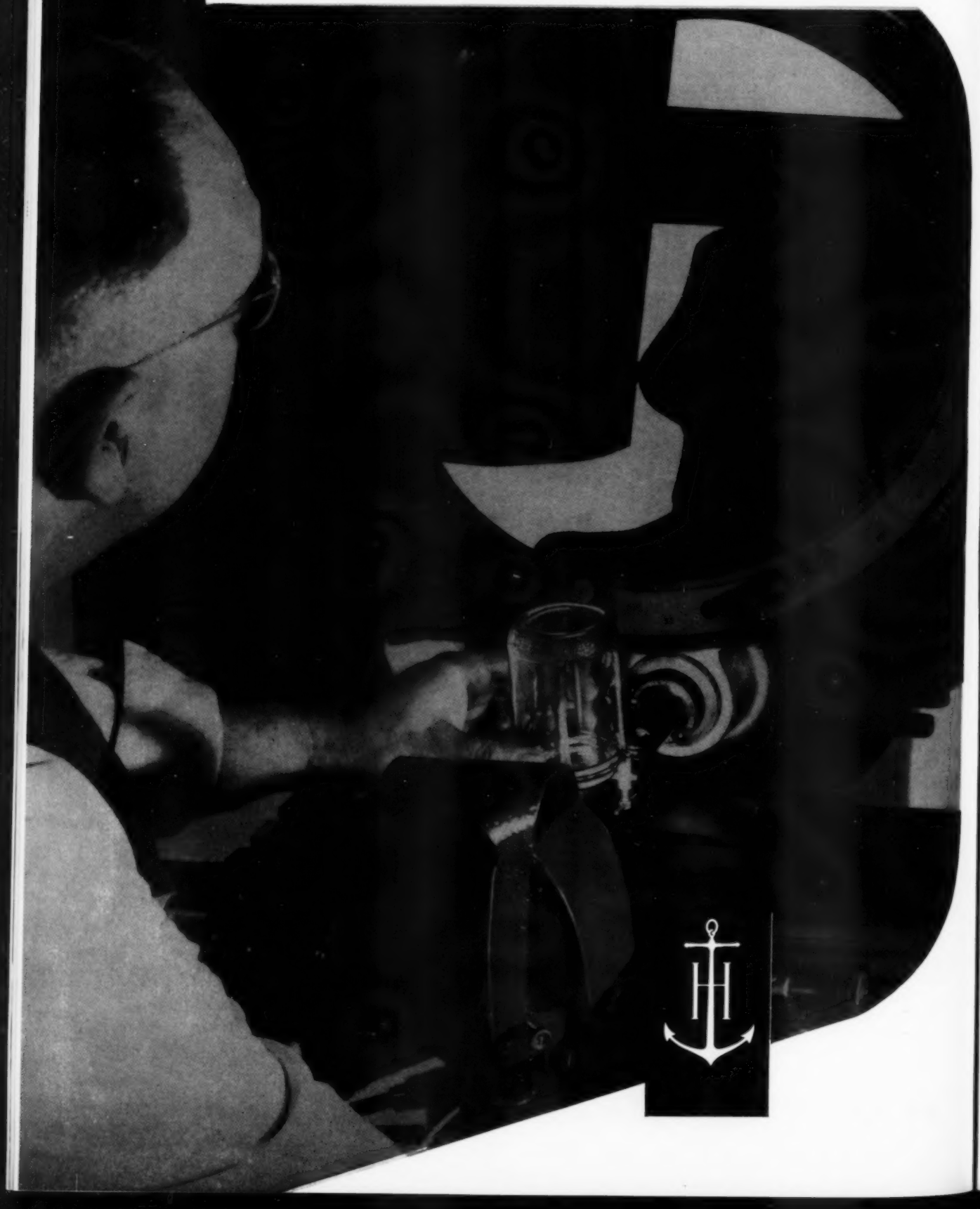
This is the day of the big cash contest. It would seem that the best business brains of America will be chiefly preoccupied with methods of giving away to the consumer just a little bit more than the other fellow.

Today, the facts of life in package merchandising seem to be that the consumer loveth the generous giver, therefore, if you want to stay in business, you better get on the hand-out band wagon.

The latest entry to this plan is Pepsodent with a $60,000 jingle contest for their tooth paste. The top winner will receive $25,000 in cash together with a ten-day all expenses paid trip for two to the 1956 World Series. Prizes that appeal to the entire family are also being awarded and the dealer whose name appears on the winning consumer's entry blank will receive a Jaguar sports car.

CONTROL IS



NEWS IN PACKAGING...

Squibb Director of Packaging

Maxson A. Eddy, general manager of the Globe Collapsible Tube Division, Olin-Mathieson Chemical Corporation, has also been appointed director of packaging of the E. R. Squibb & Sons Division of the same company.

Crown Cork & Seal Vice President

Robert F. Duemler, director of sales, Crown Cork & Seal Company, Inc., was elected vice president at the April 26 meeting of the company's board of directors, it has been announced by Russell Gowans, president.

Stanley M. Bixler has been appointed general manager of the company's Western division, and Edmund B. Spread, who has served as acting general manager, has been named assistant general manager, according to a prior announcement by Mr. Gowans.

ROBERT F. DUEMLER

Harvey C. Tull's appointment as manager of aerosol products has been announced by John H. Scherer, manager of sales for the company's can division. The appointments of Henry A. Kennington as Midwest area sales manager and George P. O'Brien as Philadelphia district sales manager have also been announced by Mr. Scherer.

HARVEY C. TULL

New Polyethylene Container

A new cube-type container made of Bakelite polyethylene which will hold chemicals, acids and alkalies is described in an announcement by the Bakelite company. Designed for one-way shipment, "Cubitainer" was developed by Hedwin Corporation, Baltimore. It consists of a semi-rigid, cube-shaped insert of polyethylene and an outer carton of corrugated paperboard.

Aerosol Techniques Triples

Aerosol Techniques, Inc., which began operations less than six months ago, has tripled its production capacity with the installation of its second filling equipment line, according to an announcement by H. R. Shepherd, president. The company has also stepped up to a double-shift operation.

The new equipment line is used interchangeably for either refrigeration-fill or pressure-fill, and for foam or spray products. The equipment includes a 32-foot stainless steel hot-water bath which holds cans in place magnetically, and electronically rejects defective packages. There is also a 40-foot packing table for set-up boxes.

Rubinstein's "Waterproof Lipstick"

New Colonial Applicator Plant

A new plant has been opened in Vineland, N. J., by the Colonial Applicator Co., John Lecardi, general manager, has announced. In addition to housing the administrative staff, the new building at 538 N. East Avenue provides 6,000 square feet of floor space, devoted primarily to assembling and finished packaging.

The firm's Park Avenue plant has been given over entirely to the manufacture of vials, droppers and syringe cartridges. It also houses Colonial's silk screening operations.

Hudnut's "Gemey Essence Mist"

Tubes Demand at New High

The Collapsible Tube Manufacturers Council have reported that demand for fold-up containers is currently at the highest point in the tube industry's history. Shipments during January and February of 202,903,920 tubes, according to Lester B. Platt, executive secretary of the council, were about 22.5 per cent greater than for the same period in 1955. Last year, shipments topped the billion mark for the first time.

February shipments of 103,230,288, 33 per cent higher than February, 1955, were the second largest for a single month, surpassed only by the 104,518,512 tubes shipped last December.

Tubes for shaving cream made the most impressive advance, up 47.7 per cent; followed by dentifrices, 39.7 per cent; drugs, 31.9 per cent; and household and industrial products, 28.2 per cent. Cosmetics showed a gain of three per cent.

NEW IDEA$

Here are additional $ ideas $ for possible development. They were suggested by marketers of chemical specialties who believe such products may have a future as aerosols. **What do you think?**

$ IDEA
"PANCAKE" MAKEUP OR COMPLEXION CREAM

Anti-fogging spray (inside glass surfaces)
Anti-mold spray
Anti-static sprays for specialized uses . . . on synthetic fibers, etc.
Baby oil
Bubble bath
Bird cage spray
Cat repellent
Cattle grub control
"Cement" adhesives
Coatings and protective films
Corn Borer worm oil (sweet corn)
Crack caulking (showers, bathtub, etc.)
Crack sealers for painters
Cleansers for heavy duty porcelain cleaning
Carbon smudge cleaner for offices
"Ditto" ink
Dog repellent
Diaper rash preventative
Eye Glass Cleaner
Gun bluing
Glue & mucilage
Mouse & rat repellent
Moth repellent
Mirror cleaner
Nail polish
Plant spray (powder)
Plastic spray—preserving valuable papers
Paint—anti-skimming
Rubber cement
Smoke spray for beekeepers
Spray materials—home repairs
Signal or alarms for odorless gases
"Soot Bomb" for coating Kymograph recorders
Sun screening spray for windows (to reduce sun fading of house furnishings)
Starch (laundry)
Tooth paste
Toilet germicide
Vapor inhalent
Wall cleaner
Window caulking repairs (plastic)
Or other products that can be sprayed, brushed on, dusted or daubed!

GC
Allied Chemical
Basic Chemicals for American Industry

Patent THOUGHTS AND TRENDS

by Thomas Cifelli, Jr.
PATENT ATTORNEY*

Some remarks on the peace now prevailing on the tetracycline patent situation, some reflections on the lessons to be learned from the recent validation of the pressurized shaving cream patent, and summaries of two recent patents will comprise the present article.

Tetracycline Peace

The traditional peaceful settlement of its patent problems finally prevailed in the tetracycline matter and the American drug industry is to be congratulated for this accomplishment. By the time this publication is released it will no longer be news that the tetracycline litigation has been settled. It is understood that Bristol, Upjohn and Squibb were granted non-exclusive royalty-bearing licenses covering the use and sale of tetracycline under the product claim of the Pfizer patent, and that Bristol has also been licensed to manufacture under this patent. Also, it is understood that Pfizer and Bristol have exchanged options to obtain licenses under their U. S. and foreign patent rights relating to processees for the production of tetracycline.

All of the companies involved will continue to sell tetracycline under their own names and therefore the public will be benefited by the resulting competition. The public will gain for another reason. The substantial sums saved by the litigants in settling the case instead of fighting it to judicial termination will very likely be devoted to further research.

Nevertheless, even patent attorneys will hail the settlement. The writer knows of no responsible patent lawyer who would prefer to conduct patent litigation rather than to settle it and to devote his energies to *creating* patent structures and seeing that these structures are respected.

Reflections on "Rise" Patent Decision

The ruling of the Circuit Court of Appeals upholding the pressurized shaving cream patent of Carter Products arrived just at press time last month and consequently could not be reviewed at that time.

Instead, the entire opinion of the court was published. Since the opinion of Judge Coleman in the lower court was extensively reviewed in the April 1955, issue of This Journal, we shall not go over the same ground there treated.

The writer feels that the cosmetic industry will do well to heed the real significance of this decision. We need not be concerned with the special interests of the parties to this litigation. Obviously, Carter Products is quite happy and Colgate is quite unhappy, but those are considerations which apply to every case since one party wins and one party loses.

What can the cosmetic industry learn from this case?

To the writer the most valuable lesson is that the industry should not be lightning quick to judge the validity of a patent. From personal experience, the writer knows that many people in the industry pooh-pooh patents. It seems that according to these gentlemen, patents are not worth the paper they are printed on, that one cannot enforce a patent and, as regards all patents owned by competitors, the patents should not have been granted because there was no invention. A curious thing has been noted however with regard to the same people. Reference is made to the fact that when these people have themselves hit upon something which is novel, they can not understand why they have to go to any trouble to give an adequate disclosure so as to warrant the issuance of a strong patent.

Indeed, with specific regard to the "RISE" patent itself, the writer has heard numerous remarks to the effect that all that was done was to put a little soap solution into a can with a propellant and that certainly could not be invention. The opinion of the appeals court punctured this summary judgment of the situation by pointing out that what was novel was to get a mixture of the right gases, with the right soaps, in the right proportions confined in a container under the right pressures so that a lather satisfactory for shaving purposes would be produced when the mixture was allowed to emerge. The court pointed out that a number of problems had to be solved before the solution to the problem was reached. In this connection when a liquid soap then on the market was mixed with nitrous oxide gas which was the gas used with pressurized whipped cream, failure resulted because the gas was soluble in the aqueous soap solution and the extruded product was not a lather but merely a soapy liquid. When Freon-12 and the soap solution used in barber shop machines was tried it was found that this would not do because the pressure was too high. When reduction of the vapor pressure by mixing Freon-11 with Freon-12 was tried it was found that a smarting, skin-irritating product not suitable for shaving was the result. Reduction of the vapor pressure with mineral oil solved the pressure problem but produced some problems in connection with the soap. Finally, sodium soaps were eliminated and the soap solution adopted was a combination of 80 parts of triethanolamine stearate and 20 parts of triethanolamine cocoate, to prevent jelling. The proper propellant was found to be a mixture of Freon-114 and Freon-12.

Lesson 1 therefore should be that we should not make snap decisions regarding the strength of patents taken out by the other fellow.

Lesson 2 is believed to be equally important: whenever we make an invention, we should, if we want patent protection, face up to the fact that considerable amount of experimental work may well have to be done in order to provide an adequate basis for a strong patent. In other words, do not feel offended when your patent attorney or the patent Examiner does not fall all over himself complimenting you on your wonderful invention, but instead asks numerous pertinent questions to bring out the existence of invention and its scope. It is in your real interests that

*Richards and Cifelli
Newark, New Jersey

New Designs

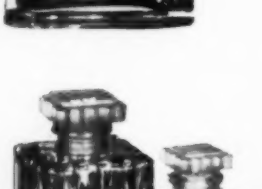
in CRYSTAL PERFUME BOTTLES

from FRANCE
...the fashion center of the world

NN 9072/2 oz.
NN 9072/1 oz.
NN 9072/½ oz.
NN 9072/¼ oz.
Cut ground-in stoppers.

NN 9073/2 oz.
NN 9073/1 oz.
NN 9073/½ oz.
NN 9073/¼ oz.
Satin matted ground-in stoppers.

NN 9073/2 oz.
NN 9073/1 oz.
NN 9073/½ oz.
NN 9073/¼ oz.
Cut ground-in stoppers.



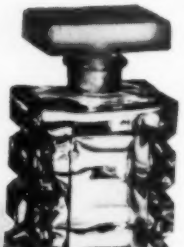
ROM 9077/1 oz.
ROM 9077/½ oz.
ROM 9077/¼ oz.
Satin matted ground-in stoppers.

MR. PERFUMER—presented are new styles in CRYSTAL PERFUME BOTTLES designed in Paris and made in France to complement and aid in selling your product.

Import prestige distinction will be expressed with the use of these perfume bottles as each one is clearly indicated—MADE IN FRANCE.

Write for complete details and prices of these and other new designs. You will be surprised at their low cost!

DAR 9074/5 oz.
DAR 9074/3½ oz.
DAR 9074/2 oz.
DAR 9074/1 oz.
DAR 9074/½ oz.
Satin matted ground-in stoppers.



PC 9075/2 oz.
PC 9075/1 oz.
PC 9075/½ oz.
Satin matted ground-in stoppers.

ROM 9078/1 oz.
ROM 9078/½ oz.
Satin matted ground-in stoppers.

PC 9076/2 oz.
PC 9076/1 oz.
PC 9076/½ oz.
PC 9076/¼ oz.
Clear ground-in stoppers.

The POCHET et du COURVAL glassworks and five other factories invite American perfumers to call on them through their distributor in the United States for aid in solving any bottling problem.

THE FRENCH GLASS CO., INC. 610 FIFTH AVENUE NEW YORK 20, N.Y.

American affiliate of UNIVER-FRANCE comprising more than 50 crystal and glass factories who employ 20,000 workers.

such questions be asked and answered.

The writer strongly recommends that a copy of the Carter patent, U. S. 2,655,480, be purchased and studied as a model.

Nitrated Aromatic Hydrocarbons

Eastman Kodak just received U. S. patent 2,739,174 on a process for nitrating aromatic hydrocarbons with nitric acid alone. It is interesting to note that the nitration of aromatic compounds is perhaps the oldest unit process in the organic chemical industry and here we are in 1956 witnessing the issuance of a patent involving this particular process.

Ross, the inventor, points out that the conventional nitration medium is a mixture of nitric and sulfuric acids, the nitric acid content of the mixture being generally not over 1/3. As the degree of the desired nitration increases the nitric acid content of the acid mixture is lower, the higher ratio of sulfuric acid being necessitated by the larger amounts of reaction water formed.

The patent notes the disadvantages which result from the use of sulfuric acid—nitric acid mixtures. For one thing the concentration of spent acid is said to be costly because it is extremely corrosive and necessitates frequent repair and replacement of concentrating equipment. Another disadvantage is that some of the mixed acids remain with the nitrated hydrocarbon and have to be removed by a washing procedure, thereby increasing the cost and lowering the yield as some of the nitro compound itself is lost in the washing. Purification steps to remove the acid with alkali and the alkali with water, etc. are also required.

Efforts to improve the established methods of nitration have of course been made but Ross states they still have disadvantages chief among which are: the need for heavy and therefore expensive equipment, the use of a batch in contrast to a continuous process, the slowness of the reaction, necessitating the use of a large unit for a given output, the necessity for recovering sulfuric acid from the spent acid if the process is to be economical, the extremely corrosive nature of the spent acid, and the losses of product and acid accompanying the decanting and washing of the crude product.

The Eastman Kodak process eliminates the use of sulfuric acid and relies upon the use of an excess of nitric acid, a liquid mixture of water and nitric acid and nitrated hydrocarbon being withdrawn from the reactor to a fractional distillation apparatus or separating the water-nitrated hydrocarbon azeotrope from the nitric acid.

Example 1 taken from the patent follows:

> In this example benzene was nitrated by the continuous and uniform introduction of nitric acid and benzene into a reactor, and with the continuous withdrawal from the apparatus of water and nitrobenzene of high purity over a period of 74 hours. The process is begun with 1000 g. of 70 per cent nitric acid in the reactor and the like amount in the base heater. 1205 grams of benzene were introduced into the nitrator at the rate of 16.3 grams (0.208 mole) per hour, and 727 grams of nitric acid (100 per cent bases) were simultaneously introduced into the nitrator at the rate of 12.9 grams (0.204 mole) per hour. The temperature of the nitrator was maintained at 110-120° C. by the removal of heat from the reflux condenser.
>
> The reaction mixture was continuously withdrawn from below the surface of the liquid in the nitrator and introduced to the base heater. Constant boiling nitric acid vapor was conducted back to the nitrator through a vapor line. In this example the nitric acid was returned in the vapor phase because such procedure was simpler in a laboratory method than the use of a recycling pump 9 as shown in the figure, but in practice, a pump would be used, since the transfer of nitric acid in the vapor phase would waste some of the heat introduced to the base heater, and would overload the reflux condenser 4.
>
> The temperature of the mixture in the base heater was 120° C. The heat was introduced to the base heater to produce continuous vaporization of the mixture up through the fractionating column. The fractionating column was 6 feet long and one inch in diameter, and the inside of the column was packed with ¼ inch glass rings.
>
> Temperatures measured at the bottom of the column were 114-119° C., indicating the presence of nearly pure and constant boiling nitric acid. The temperature at the top of the fractionating column was 98-99° C., indicating the presence of the water-nitrobenzene azeotropic mixture.
>
> During the course of this run, 1766 grams of nitrobenzene were withdrawn at the rate of 21.2 grams per hour, and 672 grams of water were withdrawn at the rate of 9.08 grams per hour. The nitrobenzene withdrawn was of excellent purity, and contained no nitric acid, benzene or dinitrobenzene. Its refractive index at 20° C. was 1.5521 and its density at 20° C. was 1.205. The water removed contained no benzene or nitric acid.

Hard Odorless Soap from Low Grade Fats and Oils

A Chilean inventor, Klaus Appuhn, obtained U. S. patent 2,739,163 on an improvement in the process of manufacturing odorless soap from low grade animal or vegetable oils and fats having a disagreeable odor.

Good quality soaps, as is well known, are usually manufactured from the fatty acids which are contained in coconut oil. A majority of those acids are saturated and have from 12 to 16 carbon atoms.

Unfortunately, most of the natural substances are not suitable for the manufacture of good quality soaps and they are therefore considered to be low-grade fats and oils.

In a previous patent, U. S. 2,640,840, Appuhn described a continuous process for the manufacture of odorless soap of high quality, from low grade animal or vegetable oils and fats. This process comprises the treatment of the fatty acids derived from low grade oils and fats with molten alkali at about 300° C. in the absence of water and at substantially atmospheric pressure. When the fatty acids used in said process are obtained from malodorous fats and oils by special reagents according to the Twitchell process, the subsequent saponification reaction with molten alkali at high temperature results in the formation of excessive and persistent foam. This necessitates resorting to a number of precautions before the reaction can be carried out in an industrially profitable manner. One such precaution is to add sperm oil to the fatty acids to reduce the foaming.

Appuhn noted that when fatty acids produced by refining were anhydrously saponified the foam formed was less viscous and dense than the foam formed when fatty acids obtained by splitting with Twitchell type reagents were used. However, and this is the point of the present invention, if the fatty acids obtained by the Twitchell process are first treated with the activated carbon,

(*Continued on page 704*)

NEWS...

Cos. Chem. Soc. to Honor Two

Commissioner George P. Larrick, U. S. Food & Drug Administration, and Dr. Walter B. Shelley, Associate Professor of Dermatology, University of Pennsylvania, will be honored May 18 at the Hotel Biltmore, New York, where the Society of Cosmetic Chemists will hold its annual Spring meeting.

Mr. Larrick will accept an honorary membership in the SOCC, a tribute extended to only seven others since the Society's founding in 1945. Dr. Shelley will receive the special award, an annual $1,000 prize given to the author whose papers offer the greatest potential advance in cosmetic science.

Articles covering research on apocrine and eccrine sweat were judged outstanding by the Society's literature review committee, Dr. Paul G. I. Lauffer of Tangee Manufacturing Corporation, chairman. Other scientists serving on the committee were:

Gabriel Barnett, Warner-Lambert Corp.; Dr. Irvin H. Blank, Department of Dermatology, Harvard Medical School; Dr. Joseph Dusenbury, Textile Research Institute; Dr. Joseph Kalish, Drug & Cosmetic Industry; Dr. David Pressman, Roswell Park Memorial Institute; and Dr. Irwin B. Wilson, College of Physicians and Surgeons, Columbia University.

Gilbert Heads Gillette

Carl J. Gilbert's election as president of the Gillette Company has been announced by the board of directors. He succeeds J. P. Spang Jr., who was elected chairman of the board, filling the vacancy created by the retirement of William A. Barron Jr. Malcolm C. Stewart, treasurer of the company, has been elected a director.

Curtis Div. Mkt. Director

Jack Doran has been appointed to the new position of director of marketing for the toiletries division of Helene Curtis Industries, Inc., George Factor, vice president, has announced. Mr. Doran will supervise the division's advertising, sales promotion, merchandising, market research and new product development.

Lilly to Buy Omaha Firm

Stockholders of Corn States Laboratories, Inc., Omaha, national distributor of veterinary products, have agreed to sell all their stock in the company to Eli Lilly and Company. The purchase, which will be for cash, is subject only to a final audit and other closing details. Corn States will function as a Lilly subsidiary.

Forrest Teel, executive vice president of Lilly has stated that the acquisition of Corn States Laboratories will give Lilly an established outlet for any veterinary products coming from its expanded research and development program.

Walgreen Acquisition

Walgreen Co. has acquired the Chemists Supply Co., Chicago, a firm consisting of two retail-wholesale pharmaceutical shops.

GEORGE W. BENGERT

Curtis Buys Montenier

The Helene Curtis Industries, Inc. Employees' Profit Sharing Retirement Plan has announced the purchase of Jules Montenier, Inc., Chicago manufacturer of Stopette and other toiletries. The plan has licensed Helene Curtis Industries to manufacture and distribute all Montenier products.

Gerald Gidwitz, Helene Curtis chairman, pointed out that this is the second name-brand line added by his company this year. In January, the Kings Men line was acquired in a similar manner.

Name Gulick Asst. Adv. Mgr.

William D. Gulick has been appointed assistant advertising manager of Warner-Chilcott Laboratories, division of Warner-Lambert Pharmaceutical Company, according to an announcement.

MELVIN C. EATON

Norwich Executive Changes

Election of Melvin C. Eaton as chairman of the board and George W. Bengert as president has been announced by the Norwich Pharmacal Company. The new chairman of the board succeeds Robert S. Eaton who, though retired from that position, continues as chairman of the executive committee and a director of the company. Mr. Bengert succeeds M. C. Eaton as president.

H. Thornton Hildebrandt, vice president, sales, and John K. Hill, vice president and treasurer, have been elected to the new position of senior vice president. Gideon M. Blaisdell, who continues as assistant treasurer, has been elected to the new post of comptroller. All other officers have been reelected for the coming year.

W. K. Teller Named V.P.

W. Kedzie Teller has been named vice president of Pharma-Craft Corporation, a subsidiary of Distillers Corporation-Seagrams Ltd., according to an announcement by Pharma-Craft president, Frank F. Bell. Mr. Teller has been associated with Pharma-Craft as director of research and general manager of manufacturing at the Batavia, Ill. plant since 1937.

W. KEDZIE TELLER

ALFRED W. CUSTER

Ciba Purchasing Agent

Alfred W. Custer has been appointed purchasing agent at Ciba Pharmaceutical Products, Inc., it has been announced by Dr. Werner H. Fischer, production vice president.

Born in Kumasi, British West Africa, where his father was with an export firm, Mr. Custer graduated from Carteret School, West Orange, N. J. and received his B.S. degree in business administration from Georgetown University in 1947.

Lehn & Fink Appointments

O. Glen (Red) Kennedy has been appointed to the new position of general manager of the Lehn & Fink division and Emanuel Goren has been named advertising-merchandising manager of the division, according to announcements by Edward Plaut, president of Lehn & Fink Products Corporation.

The appointments are part of a reorganization of the division's marketing administration. Mr. Kennedy had been general sales manager and Mr. Goren, merchandising manager. The division produces Hinds Honey & Almond cream, Etiquet deodorants, and Lysol disinfectant.

O. GLEN KENNEDY

Lt. Gov. John William Chapman of Illinois cuts ribbon during dedication ceremonies of Squibb's Chicago branch headquarters' new building in Franklin Park, Ill. Looking on, left to right, are J. J. Toohy, Squibb's general manager; P. A. Freeman, the company's Chicago regional manager; W. L. Arscott, vice president of sales; and Mayor William J. McNerney of Franklin Park.

Abbott Labs' Award to Eight

For his work in radioactive drugs, Donalee L. Tabern, Ph.D., head of the radio - pharmaceutical department of Abbott Laboratories' scientific division, has received the first "senior research award" presented by the company. One of eight members of the division honored for outstanding scientific achievement and service at the division's recent annaul dinner, Dr. Tabern received his first Abbott research award in 1948.

The other seven honored were William L. Hartop Jr., Ph.D., Clarence J. Endicott, Merlin H. Peterson, Ph.D., George M. Illich Jr., Anthony F. DeRose, Raymond J. Michaels Jr. and William B. Brownell, Ph.D.

Louis Gampert Retires

Felton Chemical Company, Inc. has announced that Louis Gampert, vice president and chairman of the board of the company for the past 23 years, has retired from active business for reasons of health. Mr. Gampert has disposed of his financial interest in Felton to the company and resigned as officer and director effective April 30. He will continue to serve the company as a consultant.

Mr. Gampert is a past president of the Essential Oil Association of the U. S., has served on many trade association and industry committees, and has acted as chairman for the essential oil industry during philanthropic campaigns.

Squibb in New Chicago Bldg.

Squibb's Chicago branch headquarters personnel are now operating out of the company's new half-million dollar building, dedicated recently by Illinois' Lt. Gov. John William Chapman. Physicians, pharmacists, state, city and community officials were among the 4,000 who attended the ceremonies.

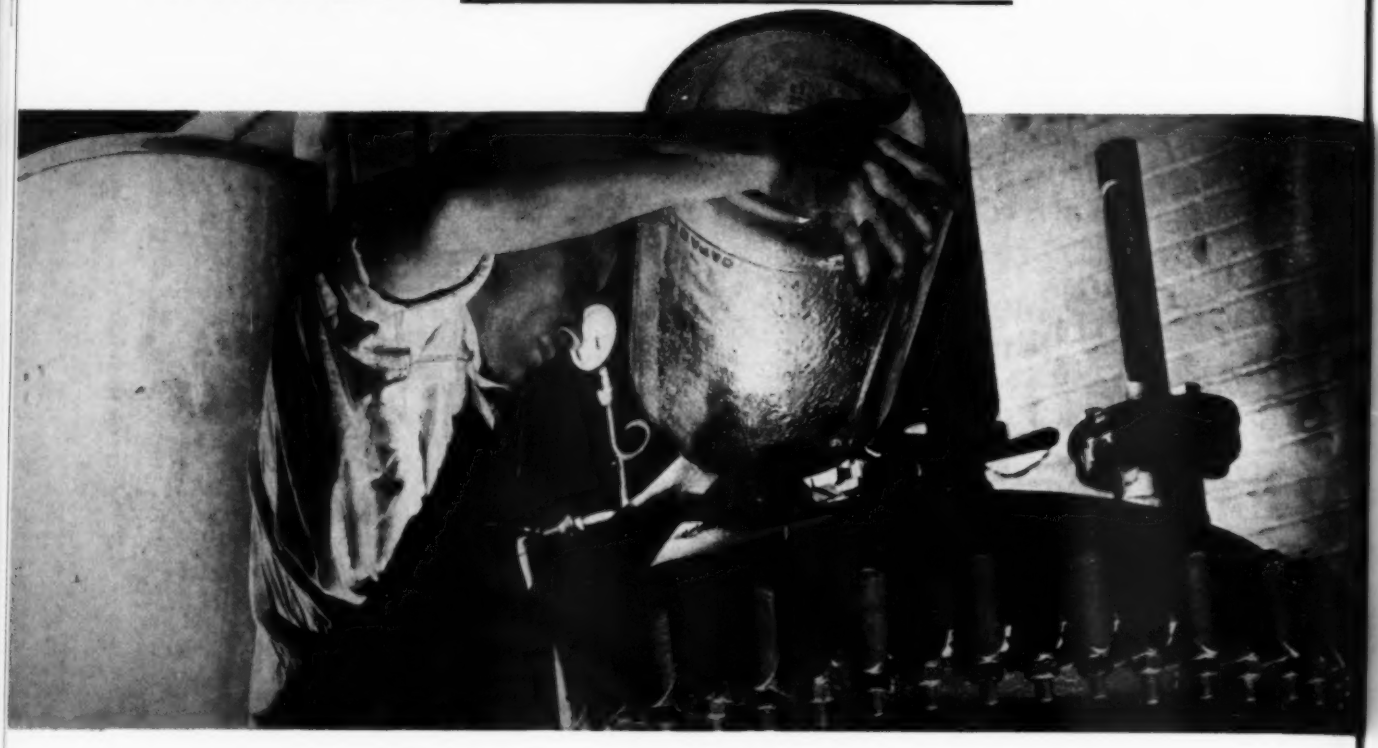
The one-story brick structure with 52,000 square feet of office and warehouse space is at 2645 Rose Street. It has a specially engineered roller conveyor system, refrigeration units for storage of antibiotics and insulin, and custom designed vaults for ether and other products requiring special storage.

The Lieutenant Governor and other state officials were escorted through the new building by squibb executives, including J. J. Toohy, general manager; Fred J. Stock, assistant general manager; William L. Arscott, vice president and director of sales; Paul A. Freeman, Chicago regional sales manager, and Fred S. Haslach Jr., Chicago branch manager.

McNeil Weighs Argentine Bid

McNeil Laboratories, Inc. is considering proposals for expansion of facilities in Argentina. The proposals were advanced by Roberto A. Devorik, president of "RYD" S. R. Ltda. of Buenos Aires, during a recent visit. Mr. Devorik's firm is an affiliate of McNeil in Argentina, Uruguay and Paraguay.

You get extra value in basic materials when you specify GIVAUDAN



Cetyl Alcohol and Deltyl®, for example,

are two Givaudan materials that offer special advantages to the cosmetic chemist.

Givaudan's CETYL ALCOHOL, thanks to its unmatched fineness, imparts a soft, velvety texture to the skin when used in creams, and a superior emollient character in lipsticks, shaving creams and other cosmetics.

DELTYL, an excellent solvent, may be used as partial or complete replacement of mineral or vegetable oils, with the advantage of greater stability. We will gladly send you samples and further information on these exceptionally fine ingredients.

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Upjohn Opens D.C. Branch

The Upjohn Company has announced the opening in Washington, D.C. of a new branch, the firm's sixteenth. It consists of both warehouse and offices. Sales manager is Fernen E. Fox, formerly sales manager of the Philadelphia branch. Office manager is Edward S. Schwartz, also from the Philadelphia branch, where he was senior office supervisor.

Arner Director of Purchases

Charles T. Hoye has been appointed director of purchases for the Arner Co., according to Dr. Niels C. Klendshoj, president. With the Rexall Drug Co. for 19 years, Mr. Hoye, for the past five years, has been in charge of that company's plants in St. Louis and Boston.

Merck's Asst. Treasurer

Harold A. Rockwell has been appointed assistant treasurer by the board of directors of Merck & Co., Inc., according to Raymond E. Snyder, vice president and treasurer of the company.

Pfizer Opens Oregon Bldg.

The Northwestern distribution center of Chas. Pfizer & Co., Inc., in Portland, Ore. was opened officially April 18 when John L. Davenport, Pfizer executive vice president, headed a group of company executives who participated in a ribbon-cutting ceremony with Portland Mayor Fred L. Peterson.

Following the ceremony, Pfizer was host to nearly 200 civic and business leaders at a reception in the new building at 3333 N. W. Industrial Street in the Guilds Lake area. Guests included local druggists, headed by Mayor Peterson, himself a professional pharmacist.

Kimble Award Doubled

The annual Kimble Methodology Research Award has been increased to $1,000, double previous awards, and is effective with the current year, according to an announcement by Kimble Glass Company officials. Established in 1952 by Kimble, the award is given to individuals who have contributed outstandingly to better methods of procedure in the field of public health.

Sponsored by the Conference of State and Provincial Public Health Laboratory Directors, the 1956 presentation will be made at the annual conference meeting in November in Atlantic City. Nominations will be accepted until June 1 by Dr. Thomas Hosty, chairman of the nominating committee, Bureau of Laboratories, Alabama State Department of Health, Montgomery, Ala.

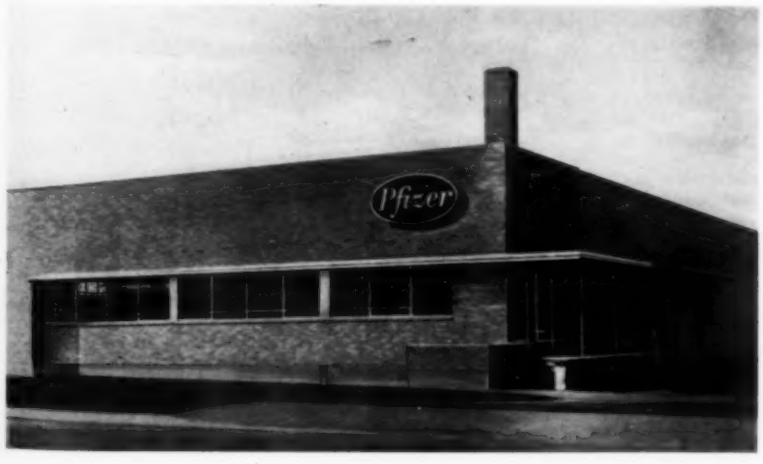
Schering Copy Director

Dr. Joseph D. Cuono, New Jersey chest specialist, has been appointed director of the copy department as well as medical advisor to the advertising division of Schering Corporation, according to an announcement by Dr. John N. McDonnell, vice president.

Reassign Carbide Salesmen

Eleven salesmen have been reassigned according to an announcement by the Carbide and Carbon Chemicals Company. The eleven and the districts they now serve are:

E. C. Biglow Jr., Cleveland; J. F. Brockman, Boston; R. F. Gildehaus, Philadelphia; P. G. Horecka, W. R. Robertson, and F. N. Wright, Newark; D. M. Neilson and C. D. Preston, New York; J. E. Nimz, San Francisco; T. L. Proctor, Albany; and H. L. Smith, Houston.



WILEY J. PICKETT

In Pennsalt Isotron Post

The Pennsylvania Salt Manufacturing Company has announced the appointment of Wiley J. Pickett to its technical sales staff to direct the introduction of the company's new line of aerosol propellants. Called Isotrons, these new products will be produced in a new plant at Calvert City, Ky., scheduled for completion late this year.

Before joining Pennsylvania Salt, Mr. Pickett was Eastern district sales manager of Lever Brothers' industrial detergents department. He has 15 years of technical service and sales management experience.

Pitman-Moore Virologist

Dr. Anton J. F. Schwarz has joined Pitman-Moore Company as a virologist. He will be associated with Dr. Charles J. York, director of the company's virus research laboratories.

Financial Institutions' Dir.

Luis de Hoyos Jr., vice president and treasurer of Synfleur Scientific Laboratories, Inc., Monticello, N. Y., recently was elected a director of the Sullivan County Trust Company and the Sullivan County Savings & Loan Association, both in Monticello.

LUIS DE HOYOS JR.

Presenting the NEW

victoria

with the new **FUTURA CAP,** shown in black—also comes in brilliant GOLD—CÔTE... bright touches of elegance for the purse or boudoir.

RICHFORD SPILLPROOF *TRADE MARK

RICHFORD CORPORATION

Emery Forms Two Sales Units

Formation of two new sales departments by Emery Industries, Inc. to replace the present single chemical-sales operation has been announced by K. K. Boyd, Emery's vice president in charge of sales and purchases.

The organizational change will provide improved technical assistance to the industries served, according to Mr. Boyd. Robert F. Brown, sales manager of the present chemical sales department for nine years, will be in charge of one of the new sections, with Robert Hull and Vern Colby as assistant sales managers. This new unit, called the organic chemical sales department, will handle the sales of all non-fatty Emery products.

For the past nine years sales manager of Emery's Sanitone division, G. William Boyd, will become manager of the new fatty acid sales department.

G. WILLIAM BOYD

Searle Board Honors Reed

The board of directors of G. D. Searle & Co. have honored Guy E. Reed for his ten years as a member of the Searle board and for services for many years prior to that as financial advisor to the company. Mr. Reed is retiring as a director. A commemorative scroll from the directors and a gift were presented by John G. Searle, president.

Mr. Reed retired early in January as executive vice president of the Harris Trust and Savings Bank. He is a former president of the Chicago Association of Commerce and Industry and a former chairman of the Chicago Crime Commission.

On Allied Labs Board

J. T. Cahill has been named to the board of directors of Allied Laboratories, Inc., parent company of Pitman-Moore Company. He was elected treasurer of Allied Laboratories in 1955.

Boyle & Company's new plant in Bell Gardens, Calif.

Winarick Buys Schenfel

Ar. Winarick, Inc., has purchased Schnefel Bros. Corporation, manufacturers of La Cross nail care products. In announcing the purchase, Jules Winarick, president of Ar. Winarick, said that Willard Hults, president of Schnefel, would be general manager of the new La Cross division. Edward Ochs, sales manager of Schnefel, will continue in that post.

Mr. Winarick also announced the appointment of Hugo Bell, formerly president of Bourjois, as national sales agent to handle department store operations for La Cross. Bernard Coopersmith was named production manager.

Schering Ltd. Medical Dir.

Dr. William K. MacDonald of Mount Royal, Quebec, has been appointed medical director of Schering Corporation Ltd. of Canada, it has been announced by Francis J. Gleason, vice president.

Before joining Schering, Dr. MacDonald was in general practice for ten years and served on a hospital staff. During World War II he was a medical officer in the Royal Canadian Army.

Boyle & Co. in New Plant

Boyle & Company has moved into its new plant in Bell Gardens, Calif. Situated on four acres, the one-story steel and concrete building provides 60,000 square feet of floor space with another 40,000 easily available. The company now has facilities to increase its present volume five times, according to George Fox, sales vice president.

Heun Production Manager

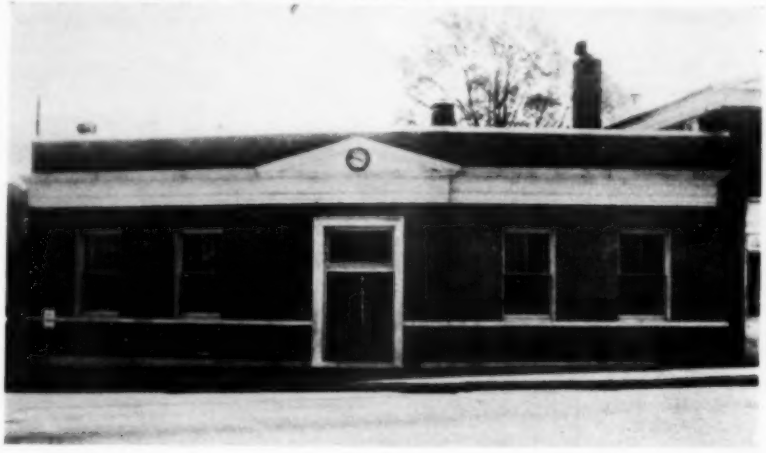
Emden Gansner has been appointed production manager of the E. W. Heun Co., George W. Koors Jr., president, has announced.

Bush & Co. Moves to Conn.

W. J. Bush & Co., Inc. has moved into a building the company purchased, located at 137 Boston Post Road, Cos Cob, Conn. The telephone is Greenwich 8-8363 or dial Westmore 7-3424. In addition to an enlarged office, the firm now has ample facilities for carrying stock for delivery in the northern New York suburban area, according to an announcement.

Plans are underway to enlarge the company's factory and laboratories at Linden, N. J.

W. J. Bush & Company's new building at Cos Cob, Conn.



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Enters Chem. Producing Ind.

Raymond Laboratories, Inc. has announced its entrance into the commercial chemical field. Twenty-year specialists as cosmetic chemists to the beauty aids preparation field, the St. Paul, Minn. firm is offering commercial quantities of sodium lauryl sulfate, quaternary ammonium compound, and thioglycolic acid and its salts.

New product applications, particularly in the industrial field, are being tested by Raymond. A new processing plant for sodium bromate, scheduled to open this month, will add another product to Raymond's list.

Strong, Cobb's Strate Up; Burke Out

Herbert A. Strate, vice-president of Strong, Cobb & Company, has been appointed director of sales of that company and is headquartered at the main office in Cleveland.

George E. Burke, vice-president and secretary of the company, has resigned but has not announced future plans.

Service of Two, Over Century

George F. Smith of Lincoln, Neb., and Clarence E. Race of Denver, whose combined service with the G. F. Harvey Company totals more than 100 years, retired recently and were presented with gold watches by E. S. Thomforde, general manager of the company. Mr. Race joined the company in 1901, Mr. Smith in 1909.

Col. Dr. Sayed A. Hob Eldin of Cairo, Egypt, the first person from that country to be admitted to the Society of Cosmetic Chemists.

Smith Pharmacal Officers

Carroll D. Smith was elected president and deVeaux O. Smith, secretary, of the Carroll Dunham Smith Pharmacal Company at a recent meeting of the board of directors. The elections were held to fill the vacancy created by the March 2 death of Carroll Dunham Smith Sr.

Joining the company in 1930, the new president has been secretary and a director since 1935 and general manager since 1938. deVeaux Smith joined the company in 1939, left in 1941 to enlist in the Army, returning as a major after three years overseas. He later rejoined the company as assistant to the general manager. A director since 1938, he served in that capacity from 1949 to 1954.

Onyx Oil Appoints Three

Onyx Oil & Chemical Company, Jersey City, has announced three appointments in its industrial division. Irving Gaines, industrial sales representative in the New York metropolitan area since 1948, has been named sales manager of the division. A graduate chemist, Mr. Gaines served as an Army Air Force navigator before joining Onyx in 1946.

Kenneth W. Hanlon has been appointed assistant sales manager, covering the New York metropolitan area. Except for service with the armed forces, he has been with Onyx since 1940. Harry Borowsky, with Onyx since 1944 as a chemist and technical service representative, has been appointed chief, technical services. He has done graduate work at Columbia University and New York University.

Pfizer Internat. Directors

Four new members of the board of directors have been elected by Pfizer International Subsidiaries, it has been announced by John J. Powers Jr., chairman of the board and president of Pfizer International. The four are Richard C. Fenton, Preston B. McGoodwin Jr., and Robert W. Middlebrook, vice presidents of Pfizer International, and John F. Duffy, assistant treasurer of Chas. Pfizer & Co., Inc.

Re-elected members of Pfizer International board include Clay R. Smith, treasurer; Paul P. McDermott, secretary, and the following officers of Chas. Pfizer & Co., Inc.: John L. Davenport, executive vice president; Herman A. Poitras, vice president in charge of production; and Edwin H. Smith, controller.

George A. Fisher holds sterling silver bowl, presented to him by Ralph A. Clark, left, vice president in charge of sales, in recognition of Mr. Fisher's 50 years of active service with the J. T. Baker Chemical Co. Mrs. Fisher shares the place of honor with her husband. Operations at the Phillipsburg, N. J., plant were suspended for half an hour to permit all of the 700 employees to participate in the program. Mr. and Mrs. Fisher also received plane tickets and hotel reservations for one-week expense-paid trip to Bermuda.

Mallinckrodt Directors

Stockholders of Mallinckrodt Chemical Works recently elected three new members to the board of directors: William D. Barry and Harold E. Thayer, vice presidents of the company, and Dr. Shields Warren of Boston.

Dr. Warren has been for many years Professor of Pathology at Harvard and pathologist at New England Deaconess Hospital, Boston. From 1947 to 1952 he was Director of the Division of Biology and Medicine of the Atomic Energy Commission. Since 1952 he has served as vice chairman of the commission's Advisory Committee on Biology and Medicine. In February, he was appointed U. S. representative on the United Nations Scientific Committee on Radiation Effects.

Mr. Barry, with Mallinckrodt since 1908, is in charge of operation of the company's Eastern division. He was elected vice president in 1945. As head of Mallinckrodt's Atomic Energy Commission program, Mr. Thayer directs the uranium processing operation which will include the new Weldon Spring plant.

Dowling Is Vice President

The election of William F. Dowling as a vice president of Burroughs Wellcome & Co. has been announced by William N. Creasy, president. Secretary and general counsel of the company since 1946 and a member of the board of directors since 1949, he will continue to be responsible for legal and related affairs.

OSCAR L. BUTLER

HARRY ISACOFF

W. WARD JACKSON

Approved Products Exec. VP

Oscar L. Butler, for more than thirty years general sales manager of Universal Chemical Division of R. M. Hollingshead Corporation, Camden, N. J., has been named executive vice president and member of the board of Approved Products Incorporated.

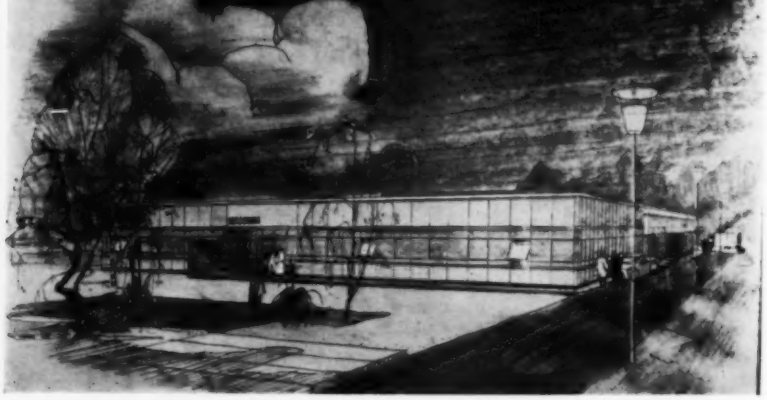
Martin H. Smith Moves

Martin H. Smith Company is now at 131 East 23rd Street, New York 10. The new telephone is ORchard 4-8300.

Upjohn Ltd. to Erect Bldg.

The British unit of the Upjohn Company has completed plans to erect an office and warehouse building at Crawley, a city twenty-eight miles southeast of London, according to an announcement by R. S. Jordan, chairman of Upjohn of England, Ltd. The new building is scheduled for occupancy by the end of this year. Since beginning operations in England about three years ago, Upjohn has leased quarters in a London building.

Architect's drawing of building for Upjohn of England.



Joins van Ameringen-Haebler

Harry Isacoff has joined van Ameringen-Haebler, Inc. in a staff position, according to H. J. Amsterdam, manager of the customer service division.

Formerly on the research and development staff of Elizabeth Arden Sales Corporation, Mr. Isacoff's prior experience includes nearly ten years with the U. S. Food and Drug Administration, Drug and Cosmetic Section, New York District. He was also a research chemist and at one time was in charge of all production for Brewer & Company.

Federal Govt. Consultant

W. F. Twombly, vice president of Witco Chemical Company, has been appointed consultant on organic chemicals in the Chemical and Rubber Division of the Business and Defense Services Administration, Department of Commerce. While Mr. Twombly is temporarily in Washington, D.C., his duties will be assumed by William C. Walker, assistant director of advertising and public relations.

Chem. Ind. Defense Unit Head

W. Ward Jackson, vice president of Commercial Solvents Corporation, was elected president of the Armed Forces Chemical Association, New York Chapter, at the organization's recently held annual meeting. Members of the association act as liaison between industry and government officials concerned with defense problems.

Pfizer Adv. Dept. Changes

To provide better-integrated advertising programs for Pfizer products, the advertising department of Pfizer Laboratories, division of Chas. Pfizer & Co., Inc., has created the posts of product group advertising managers, each manager responsible for planning, operation and control of advertising on major product lines, according to an announcement by E. W. Whitney, advertising director. Three members of the department have been promoted to these posts, and a fourth has been promoted to assistant advertising director.

The three product group advertising managers are: Edwin J. Mills, responsible for all current and new antibiotics, including Terramycin, Tetracyn, Tetrabon and Combiotic; Wellden C. Neill, responsible for Bonamine, Toclase, Candettes and veterinary and dental promotion; and John F. Hogan, responsible for Sterane, Cortril, Terra-Cortril and Tyzine.

Promoted to assistant advertising director, William Charles will maintain supervisory control of all programs and will be responsible for overall budget planning and control. He will also manage "Spectrum," Pfizer's service publication for the medical profession. Formerly published as an insert in the "Journal of the American Medical Association," "Spectrum" is now being mailed directly to physicians.

Hazel-Atlas Elections

J. H. McNash was elected chairman of the board and president April 27 by the board of directors of Hazel-Atlas Glass Company at the annual organization meeting.

Formerly chief executive officer of the company, Mr. McNash at his request was relieved of the duties and responsibilities of that office. H. G. Lewis, who has been vice president and secretary, was elected executive vice president and by action of the board was delegated the duties of the chief executive officer, responsible for the general and active management of the business of the company.

Norman G. Ross, formerly treasurer, was elected secretary-treasurer; George R. Worls was elected assistant treasurer and Jack W. Conkel, assistant comptroller.

"Amalgamator" Editor

Dr. John H. Biel, chief of the chemistry division of Lakeside Laboratories, Inc., Milwaukee, has been appointed editor of the "Amalgamator," official publication of the Milwaukee section of the American Chemical Society.

Felton Flavor Catalog

The 1956 flavor catalog of Felton Chemical Company, Inc. has been printed, listing a wide range of flavoring materials, departmentalized in the book according to their uses. Included are a number of products developed during the last year by Felton.

Elected Heyden Director

Arthur Minich, vice president of Heyden Chemical Corporation and president of Nuodex Products Company, a division of Heyden, has been elected a director of Heyden, according to Simon Askin, president.

Malmstrom Application Lab

Establishment of a products application laboratory to service the cosmetic, pharmaceutical and allied industries has been announced by Richard Malmstrom, director of sales for N. I. Malmstrom & Company. Irving Colbert has been named head of the new laboratory.

N. J. Zinc Boston Sales Head

Alfred Ohlander, formerly pigment sales representative of the Chicago office of The New Jersey Zinc Sales Company, has been placed in charge of the company's sales office in Boston, it has been announced.

SELDEN T. WILLIAMS

Williams is Scovill Dir.

Selden T. Williams, vice president of Scovill Manufacturing Company and general manager of the company's A. Schrader's Son division, is now also a director of Scovill, according to an announcement. Mr. Williams is president and treasurer of Schrader-Scovill Company Proprietary Limited of Australia.

Lilly Analytical Dept. Mgr.

Wayne W. Hilty, in analytical work with Eli Lilly and Company for twenty years and assistant manager of the analytical department for the past six, has been appointed manager of the department, succeeding Edward J. Hughes, who has retired.

McAdoo Warner-Lambert VP

Francis H. McAdoo Jr., president of the Emerson Drug Company, Baltimore, has been named vice president and a director of Warner-Lambert Pharmaceutical Company, Alfred E. Driscoll, Warner-Lambert president has announced. The merger of Emerson and Warner - Lambert became effective April 2.

FRANCIS H. McADOO, JR.

Chemist Joins Emulsol

Joseph Wechsler has joined the organic chemical research staff of Emulsol Chemical Corp., Chicago, a division of Witco Chemical Company. He worked three years as an analytical and development chemist for Kadimah Chemical Corp. in Haifa, Israel, before coming to the United States. He is a graduate of the University of Jerusalem.

Frederick H. Leonhardt

Frederick H. Leonhardt, eighty-three, chairman of the board of Fritzsche Brothers and its affiliate, Dodge & Olcott, and recognized as the dean of the American essential oil industry, died April 10 at his home in Douglaston, N. Y. He had been associated with his firm for more than sixty years.

Born near Leipzig, Germany, he served an apprenticeship in chemistry

FREDERICK H. LEONHARDT

with a local drug house and later a leading chemical manufacturer. The latter sent him, in his early twenties, to join its New York branch, Fritzsche, Schimmel & Co. He soon became aware of the industry's need for authentic chemical and physical standards for testing imported essential oils. Years later, as vice president and then president of Fritsche Brothers, Inc. he initiated and directed a world-wide program of on-the-spot surveys by which the industry gained accurate scientific data.

Mr. Leonhardt's keen interest in the welfare of his employees is reflected in the comprehensive retirement and health programs he instituted. His benefactions were many and included a donation of a memorial chapel to the Community Church of Douglaston.

Surviving are his wife, Mrs. Anna H. Leonhardt; a daughter, Mrs. Dorothea Cassullo; his son, Frederick H. Leon hardt Jr.; and four grandchildren.

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PRECISION is proud to present the latest in its line of superior quality aerosol valves . . . the aerosol bottle valve. Time-tested and of the same high production standards, it invites your inquiry to enable our staff of aerosol valve technicians to work cooperatively in satisfying your requirements.

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Management Forum

by Francis Chilson

INDUSTRIAL CONSULTANT

The Importance of Export Markets

A cloud no bigger than your hand recently appeared on the economic horizon in the form of a news note from India. The Russians got an order for 445,000 tons of cement from India at a price $2 a ton less than prices quoted by the English and German bidders. That's a hell of a discount—more than twenty per cent as cement prices go. What interested me is that the incident elicited no editorial comment on its significance. To me it signifies the type of competition in the international markets we shall have to face *in the near future*—say five years maybe ten, barring war. (And I don't think Russia will go to war under any circumstances whatever. She is gaining too much by not being at war. And she would lose too much if she went to war even if she won it.)

The Russians can sell cement at a loss to gain other advantages political or economic. It seems obvious that she realizes that from now on there is more to be gained for her in the economic than in the political sphere. Her cement industry does not have to operate at a profit. There are no stockholder's dividends to worry about; no recalcitrant boards of directors to be concerned with. She can give the products of one industry away, if need be, to gain advantages for another. Her whole economy is one corporation controlled by and beholden to the Communist party.

If you think this incident doesn't mark the application of a technique of market exploitation, just remember what the Germans did to our chemical industry before World War I. We didn't have a chemical industry then; the Germans wouldn't allow it to get started. Whenever an American enterprise got fairly going the Germans cut prices until the American outfit went broke; then they raised prices again until they had recovered their losses. The potash case of 1910 was a notable example. The same procedure was followed in the manufacture of dyestuffs. Our tariff system was set up to prevent this sort of thing but the Germans paid the tariffs and lowered prices anyway. Right now the Germans are landing certain chemicals in this country and are underselling our own well-entrenched, tariff-protected firms.

But the Germans did and still do operate as individual firms and cartels, secret or otherwise, and they have stockholders and directors. Hence there is a limit to dumping somewhere.

But that is not the case with the Russians. They can go on dumping indefinitely. Right now it is cement—and you may be little concerned with that—but five years hence or ten years hence it may be pharmaceuticals and chemicals. *It will be pharmaceuticals and chemicals, mark you that!*

Time was in international trade when monopolies or strong advantages could be secured, if not by price cutting, then by financial control exercised through the international banks.

But Russia is not beholden to any bank anywhere. She is her own banker. She can extend any credit terms she wishes.

Developing without principles, scruples or morals, Russia is emerging as a homogenious capitalistic state in which the rulers of industry and government are the millionaires of today and the multimillionaires of tomorrow. But their millions are supported by the wealth of an entire, vast, rich country, whereas in our distributive capitalist country our industrialists are individually supported by individual enterprises, which must be kept operating at a profit or they soon cease to be industrialists. And in any case it is difficult for them to become millionaires because of taxes.

My reason for concern is that in foreign trade we Americans are too easy going and almost completely lacking in vision. For a time after both wars we supplied the world. If anyone anywhere wanted anything, they had to come to us to get it—or at least to get the money to buy it elsewhere if we didn't have the

for making press-coated tablet

The new Stokes press-coating machine produces press-coated or dry-coated tablets to a high level of uniformity and precision. These machines make tablet-within-a-tablet structure commercially practical. This technique opens up broad possibilities for unique products.

. . . for applying coatings where water cannot be used

. . . for combining incompatible materials

. . . for producing heavy or time-delay coatings at low cost

. . . for making multiple-dosage tablets

The machines produce tablets consisting of a core surrounded by an accurately controlled layer of compressed dry material. Core tablets, prepared on a standard press, are automatically hopper fed to the press coater. The machine first fills the die volumetrically with a portion of the coating granulation. Then a core tablet is centered in the die cavity, and the remaining coating material is filled in, and pressed accurately to required density.

These operating features assure dependable, uniform production:

- Core tablets accurately centered
- Easy set-up and changeover of core size or coating
- Coating thickness accurately controlled on all sides
- Automatic rejection of core-less tablets
- Embossing or engraving of coated tablets
- Uses standard tooling

Write for complete specifications, and for a consultation on your specific application.

Put your new product idea to work with these *new* Stokes Tablet Machines

for making multi-layer tablets

New Stokes multi-layer rotary tablet machines now make it possible to manufacture tablets which have several layers of different ingredients . . . to precise weight tolerances in each layer. This technique proves useful for such products as multi-color tablets . . . preparations with two active materials separated by an inert layer . . . simultaneous dosages of incompatible materials . . . and numerous other specialized tablets.

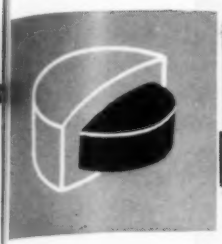
In the new Stokes machines, each layer is pressed separately. Weight tolerances of 1% or better are readily maintained. Each layer is separated cleanly from the others.

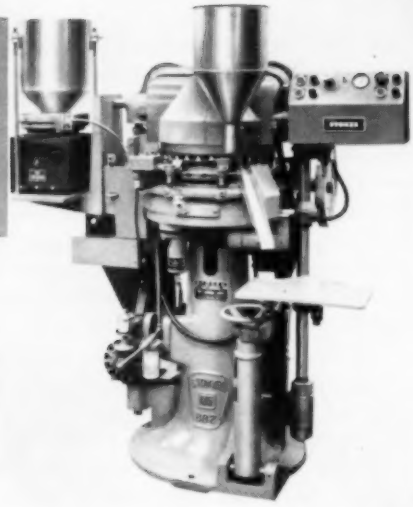
A single set of cams can produce a variety of multi-layer tablets. A three-layer press can be changed over easily to produce two-layer or standard tablets. While the machine is in operation, the first and second layers can be ejected for weight check.

Several different models are available, all using standard BB-2 punches and dies. Production is conservatively rated at values up to 950 tablets per minute.

FIND OUT TODAY how these new Stokes tablet machines can help you put new ideas on the market . . . at economical cost. Contact your nearest Stokes office, or write for complete facts . . . on these machines, and on the Stokes Advisory Service.

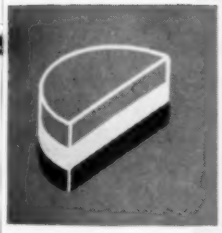
F. J. STOKES CORPORATION, ***Pharmaceutical Division,*** **5510 Tabor Road, Phila. 20**

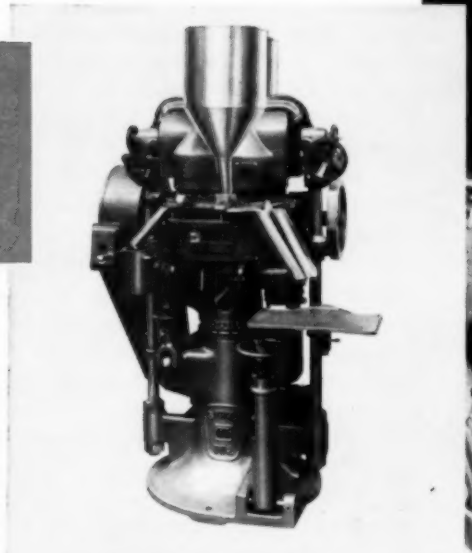




Core tablets are fed into the hopper, then automatically fed to the transfer mechanism, and coated accurately to desired thickness and densities.

o work
Machines





Individual layer compression assures close weight tolerances per layer. Here the operator is ejecting first layers of multi-layer tablets for weight check, while the machine is in operation.

STOKES

abor Roa hila. 20, Pa.

wanted commodity. But all this has changed already; we are importing now more than we export.

During the whole of our industrial history we have been so concerned with the development of our own vast home market that most manufacturers ignored the potential of foreign markets or regarded them as a damn nuisance. It might have been otherwise had not the two world wars given an enormous boost to our economy as the source of supply for finished goods for almost the entire world.

It is different in England and Germany where business men appreciate the potential of foreign markets. There, their best men are trained in the needs, aspirations, habits, likes and dislikes of the people with whom they intend doing business; they are trained in the history and current political establishments of their customer countries—and the Germans, particularly, go a long way in training or selecting men who know the languages of these countries. They extend long credits; they make goods the way the customer wants them.

But with us it has been too much bother. Instead of selecting our best men to head up foreign operations we very frequently select our worst or we use independent selling agents. Many of our pitiful export departments are operated almost autonomously by some nice little chap with a foreign accent, and the export department is regarded as being foreign territory far less important than the bookkeeping department. In extremely few of the large firms in our trade is the export manager an officer of the company. He doesn't participate in management councils. In short; he carries very little weight.

To show you how unimportant some businessmen regard the export division let me relate an experience: with the president and executive committee of a well known company, I sat in on a discussion concerning the future of one of the vice presidents. This man had gone very dead on the vine and then complicated matters by getting into a serious jam. Most of the committee were for firing him forthwith, but the president, pointing out that the man had only five years to go to retirement, said it would be a shame to cut off his pension rights, particularly since he had once been a very good man and he would not agree to firing him. So it was decided to put him in charge of international operations and "get him the hell out of the office!" Believe it or not that story is true. In this case the export division, though long established, had never accounted for more than five per cent of the company's volume. So it didn't cut much ice.

The potential of the export market is so enormous that it is incomprehensible. India, the Near East, Africa, South America—all these countries want things they cannot now make. They also want to build factories to make all sorts of things. They will not long be denied. If we don't furnish their needs, Germany, England, and Russia, in particular, will. And we must always import raw materials. We are not self sufficient.

But we have got to learn that we can't forever expect people to pay for our goods before the goods are shipped from home ports or taken off at foreign docks. We've given billions away with no return ever since the beginning of World War I. It would seem that we could extend billions in credit with the assurance that at least we get most of it back.

In my opinion the study and management of foreign markets should in every organization be in the hands of the best man available. Not some mousey little clerk.

It is my conviction that our government has overemphasized the role of Russia as a potential military and political enemy, while ignoring her greater potential as an economic enemy. It's time we stopped sneering at Russia because of her crudities and her lack of the niceties of life that we have. We should stop wasting time making invidious comparisons between products and ours; between her output per man hour and ours. This serves no constructive purpose. I have said and I say again that I don't think the Russians will ever catch up with us, but this does not gainsay the fact that industrially she is making enormous strides. So we had better watch out and stop feeling so damned smug.

Strikes Don't Pay

The Westinghouse strike emphasizes again that strikes do not pay. Even when the strikers win a wage increase, months and even years must elapse before the increment offsets total wage losses. The employer's losses are colossal too, but the employer is in a position to recoup very rapidly, because his losses can be offset against earned surplus, and, when in the rare cases that this isn't sufficient, the employer at worst may have to pass one or two dividends. In the Westinghouse case workers lost 100 millions in wages; Westinghouse 300 millions in sales. Think of it!

I cannot understand why workers allow themselves to be so dominated by the union leaders as to vote for strikes. Surely they must know that the cost of the strikes will come out of their own pockets.

In any case employers should constantly keep before their workers the high cost of strikes to all workers. Such statistics should be published constantly in the press and as constantly broadcast by radio and television. Documentary films showing the effect on worker's families of prolonged strikes should be shown on T.V. and in the newsreels in theaters.

The right of a worker to strike cannot be legally abrogated. It is a fundamental right. But by the same token management should have the same right too. Management should have the right to strike against unfair and uneconomic labor practices. Sauce for the goose! But the stockholders would howl bloody murder! And how!

One thing employers should not do and that is hire striking workers from other plants. When an em-

ployer knowingly hires a striker he not only is supporting the striker but he also is striking a blow against the struck employer. He really is guilty of an unethical practice. By supporting strikers, the unmolested employer may also be supporting a maverick or even a communist union. If employees decide to strike, by all means let them exercise their right, but at the same time let them support themselves while doing so. I think also that state unemployment insurance should be denied to workers on strike. Strikes are an anachronism and are no longer necessary under modern industrial conditions.

In this column a couple of years ago I proposed a method of dealing with strikes that would be morally effective while hurting neither the employer nor the employed. Up to date, however, no one has offered an effective criticism of the plan nor has anyone had the guts to try it.

The following excerpt from a letter, written after the Westinghouse strike had terminated by James B. Carey, president of the International Union of Electrical, Radio and Machine Workers, to the editor of The Wall Street Journal, proves what I said above about the importance to the unions of employers who are willing to hire workers from struck plants. The italics are mine:

"Editor, The Wall Street Journal:

Your March 22 editorial "The Costly Gains," deals with the losses to employes and to Westinghouse as the result of the strike involving our union. You conclude that at 20c an hour in gains, it would take employes several years to recoup the wage losses as a result of the strike.

In the first place your estimate of wage losses are some $26 million higher than even that of Westinghouse. *Furthermore, your estimate does not allow for the large number of people who took other jobs during the strike,* or the income taxes not paid, or for the millions of dollars contributed to strikers by unions and by generous merchants. Thus, even the company's figures must be reduced drastically."

So, if you want to preserve industrial warfare—strikes—be sure to hire striking workers at every opportunity!

The Boss's Daughter and Your Wife

An article in a recent Harvard Business Review contains some of the most remarkable hog-wash I have ever read. On the basis, so the authors, Warner and Abegglen, say of 8300 interviews (these guys apparently have nothing else to do but interview—Kinsey with a big staff and several years time admits only to 5000 odd); they say that the old adage it pays to marry the boss's daughter has been proven wrong. "A laborer's son who marries the boss's daughter will land in a top management spot only two months sooner than if he had married the girl next door." (Believe that and you'll believe anything.) "The man who marries the boss's daughter is buying social, rather than business success. Business success depends not on whom a man marries, but on what his talents, energies and single mindedness of purpose are." (The farmer took another load away!)

I'll buy the talents, energy and single mindedness. But a bit of luck mixed in, plus the right economic period, the right personality, and the right industry will help season the mixture. If on top of all this you marry the boss's daughter you've got the cream on the crumpet.

These two bright sociologists go on to discuss the importance of the success-minded business man's wife. "She must not demand too much of her's husband's time or interest. Because of his single minded concentration on the job, even his sexual activity is relegated to a secondary place." (Have you ever read such gaddam rubbish in your life?) You, young executives, who are seeking to climb to the top, hark ye! When you go home at night don't go to bed with your wife. Go to bed with the accounts receivable, the production schedule or the sales forecast. It's lots of fun. Marry the business. Make love to it.

My own observation is that many of the truly successful business men I know, will not only go to bed with their own wives but with almost everybody else's who happen to be handy, in case their own aren't. These two seers go on to say, "Her participation [in local social and community affairs] can be a direct steppingstone in getting to know the right people."

That's the ticket. Use your wife as a bird dog. Tell her to use her sex to butter up the Old Man. Be sure she laughs at his corny jokes and sighs with wonder at the wisdom of his opinions. Be, and teach your wife to be, a social climber of the most fawning type. Use your wife as a pimp for that bitch goddess, Success. (Excuse me, while I take out time to vomit.)

Time Study Troubles

I have often warned of the dangers inherent in time study and piece rate setting *methods.* In certain instances where a high degree of mechanization can be achieved I have argued against piece rates. In a properly mechanized and supervised plant two results can be achieved without time study or any kind of incentive: maximum output and minimum fatigue for personnel. Yet I freely admit the value of time and motion study and incentives in all hand and semi-automatic operations.

My arguments were based on experience on the way time studies are conducted and the way rates and incentive bonuses are set. I have thrown out many piece rate and other incentive systems and multiplied output through better layout and proper mechanization. This experience points to one thing: the studies were made on the wrong operations, in the wrong places and in the wrong way.

One reason behind this is that many, if not most,

of the outfits that specialize in establishing rate and incentive systems are complete phonies. They call themselves "engineers" but if you look into the qualifications of their men, you will find that many of them are not graduate engineers at all. They are high type clerks and they were taught whatever system of rate setting is favored by the company on whose staff they happen to be. They don't know your industry. They don't know the equipment available to it. They are not inventive. They are not good observers. In short they are not qualified for such an important task. But if your plant is in such a mess that almost any jackass with a fresh outlook can make improvements in it whether qualified or not, then these so-called time study engineers can, on a bookkeeping basis, apparently justify their always high fees.

Never become involved in a time study or rate setting program until you are sure that your plant layout cannot be improved; that your equipment cannot be improved; that your material handling methods and equipment cannot be improved; that your working conditions and supervision canont be improved; that your control and scheduling records cannot be improved.

If you are sure you have the right foundation to build on and you are certain a further improvement can be obtained, then the next step is to sell the program to your people and your union. You've got to convince them that the program will, not only increase their earnings, but it will also make their jobs easier. When you've done that I would hire a time study man to set up the system. Try to get a man with a broad background in your own industry and don't be petty about salary requirements. A really good man is cheap regardless of what he is paid. I'd take plenty of time hiring him to make sure that his personality and manners will fit into your organization. You'll have a hell of a time finding such a man. If you fail, then interview several of the management engineering firms. Take your time. Reserve the right to approve the men assigned to your job. Check their qualifications and experience. Check with former clients of the organization. Don't be over-awed by the size or reputation of clients they profess to have worked for. Never accept testimonial letters; check at the source. When the job has begun see that the engineers assigned to the job are properly introduced. After that keep in close contact with the work as it progresses to head off trouble the moment it starts. Westinghouse didn't do that and see what happened.

To show you how careful you must be in setting up a rate system, I want to append a quote from a recent issue of "Time" on Time Study:

"Even in the current era of labor peace, one big troublemaker still shows up all too often in U. S. industrial relations. That troublemaker is the time study, the system by which the operation of a certain job is clocked to determine how long it should take to do it. A time study man with a ticking stopwatch can show up on a factory floor and in an hour bring a giant production process to a halt; an argument over time studies is one of the biggest causes of the five-month-old strike at Westinghouse (Time, Oct. 24 *et seq.*). Of the 3,399 grievance cases the American Arbitration Association handled last year, 23% were caused by disputes over job standards, wage incentives and time studies. In the past six years more than 25% of all man-hours lost from work stoppage were directly caused by arguments about measuring a worker's performance. In the case histories of labor-management relations, the time study has run up a long record for making trouble."

Those Traipsin' Scientists

To show what happens when you let a scientist out of the laboratory I append below the verbatim report of a doctor who was sent to Paris by one of my English clients to negotiate the purchase of a couple of products in which the company was interested:

DATE November 8, 1955
FROM: A. E. A....., PARIS
SUBJECT: VISIT TO LULU DELICIEUSE, S.A.,
17 bis, Rue des Grues,
Place Pigalle, Paris, 9e.

I called this evening on the firm Lulu Delicieuse, S.A. and had the good fortune to be received most courteously by Madame Delicieuse herself, Directrice of the Establishment. Madam Delicieuse is quite a redoutable figure, in fact her figure provides ample justification for the use of S.A. in the name of her firm.

Madame Delicieuse did not actually know of our Company but expressed little surprise at a visit from me, explaining that it is by no means rare for her to receive visits from representatives of English firms She has so far come to no definite agreement with any. of these firms.

Lulu Delicieuse S.A. specializes in the marketing of a product known in France as "Fifizone." This product has wide appeal. It is difficult to put it into any particular pharmaceutical category. At times it is a stimulant and at times a sedative. The unusual feature of it is that it always seems to produce the action most desired by the customer. I shall be able to describe this to you in more detail if ever I return to England.

History and Bibliography

The product is not entirely new, having apparently been known to the Ancients. Countless references to it exist in the hieroglyphics discovered in the tombs of the Pharaohs. Old Greek and Roman manuscripts deal very thoroughly with it and it has been the subject of intense study right through history up to, and including, modern times.

As witness to the extraordinarily keen interest taken in this product in present-day Paris I must draw your attention to the abundant literature which exists, not only in the Public Libraries and Technical

Book Stores, but even in the Newspaper and Magazine Kiosks on the streets.

Presentation

In view of the above facts I asked Madame Delicieuse to explain the special features which made her own product so outstanding. It is apparently the presentation, and I fully understood this the moment Madame Delicieuse demonstrated her Packages of "Fifizone."

The Packages were displayed most attractively in containers of different shapes, colors, designs and scents. It would probably be sufficient, and even more accurate, merely to record that they were displayed.

Registration

It is no longer possible for such a product to be registered in Paris, although application for a license in provincial France has been made. This does not present undue difficulties, as there appears to be more license over here than in England.

Royalties

Madame Delicieuse, who indicated that she knew a great deal about Royalties, preferred not to discuss this aspect for reasons of delicacy and diplomacy.

Toxicity and Addiction

Toxic effects can be said to be non-existent, provided that the product is taken according to the instructions.

Madame Delicieuse's slogan is, "Once a customer always a customer." Undoubtedly her customers come back for more of the product, but it is as yet uncertain as to whether this can be described as true addiction.

Sales Organization of Lulu Delicieuse, S.A.

I cannot give many details of Madame Delicieuse's Outside Organization, but it is quite obvious to me that it must be a very active one. On my former visit to Paris I was several times approached in the Rue de Rivoli by Medical Detailers of the firm, each offering me most beautifully illustrated brochures.

Conclusion

My sincere recommendation is that our firm should not come to any agreement with Madame Delicieuse until we have carried out exhaustive (and exhausting) Clinical Trials of our own.

I well realize the difficulties which would be raised if the efforts of Members of our Development Division should be diverted from other tasks to take part in Clinical Trials or Market Surveys of this product in England. You may accept my assurance that the product would have tremendous appeal in England.

Further information on the product is, however, needed and my suggestion is that you depute me to carry out the necessary Clinical work in Paris. This work should not take unduly long, in fact, I think that I could learn the essential preliminaries in under five years. From my point of view this would entail great sacrifice, as it would mean a temporary exile from the glamor of life in Soho and the possibility of visits to Limehouse.

The Wearing o' the Green

I've often wondered how it would affect a red faced Britisher to wear the green on St. Paddy's day. Now I know. It seems that somebody dared John Walmsley to wear a green bowler (derby hat) on St. Patrick's day in New York. Not only did he wear the hat but after having had a few straight shots of Scotch whiskey to offset the effects of concussion just in case, he walked up Fifth Avenue while the parade was still going on. Then in a state of mental exhaustion he hurried over to the Men's Bar in the Waldorf, and was fed a few drams of Irish whiskey. Upon opening his eyes he saw what no other Englishman, in a similar state, has ever seen before—a kangaroo. Had he been an Aussie you could have expected that. I've heard of seeing snakes and pink elephants but a kangaroo—never. The Irish must have scared hell out of the Englishman to make him see a kangaroo. That's for sure. Anyway his bowler wasn't crushed. It was just jammed down over his ears.

Random Notes

Haskelite Mfg. Corp., Grand Rapids, Mich. is producing plastic panels for either interior or exterior use and consisting of glass fibre reinforced polyester sheets bonded to foam plastic cores. These panels will not warp they will withstand high impact, corrosion, moisture, heat and vermin. These panels require no painting, hence, maintenance is nominal.

Rol-Loader Corp., Parma 29, Ohio, is offering a rolling, secondary deck for trucks. The decks roll in and out of trucks to facilitate loading and unloading. These decks consist of heavy plywood floors attached to rollers which roll in channels. When extended they will support one and one half tons. Particularly suitable for light pick up trucks.

Lewis Shepard, Watertown 72, Mass. offers a Hydra-Fork lift truck in capacities up to 3000 pounds, which can operate in aisles as narrow as six feet. In such aisles they can make a right angle turn. Compactness is achieved by having the driver stand up, together with spread forelegs similar to straddle trucks and a ram which pushes the loaded pallet off the lifting forks. Hence the forelegs need not straddle the lower pallets when upper pallets are being removed or placed in position.

Sturtevant Mill Company, 122 Clayton St., Boston 22, Mass. offers both production and laboratory sizes of the famous Micronizer. Both machines will reduce solid materials to micron sizes or less and remarkably high rates of output capacity.

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Compounder's Corner

Antiperspirant Patent

Patent No. 2,734,847 was issued February 14, 1956 by the United States Patent Office to F. M. Berger and S. L. Plechner, the patent having been filed August 6, 1952. It covers the use of mixtures of aluminum salts and zirconium salts related to sodium zirconium lactate to enhance the antiperspirant activity of the aluminum salt.

"The relatively soluble organic zirconium salts, although ineffective to inhibit perspiration flow when employed alone or as the sole active ingredients of a preparation, apparently not only prevent both the irritation and fabric injury characteristic of the inorganic aluminum salts alone but also supplement or augment the perspiration inhibiting action of the aluminum salt as well. Thus we have found that preparations according to this invention containing as their sole active ingredients approximately 10 per cent of aluminum sulfate and five per cent of sodium zirconium lactate, or containing about 10 per cent of aluminum sulfate with about five per cent of sodium zirconium glycolate are at least as effective in stopping perspiration flow as a composition having a similar base and containing as its sole active ingredient about 20 per cent of aluminum sulfate buffered with about 10 per cent of urea."

Typical formulas given are:

Petrolatum	**2.0**	**1.0**
Spermaceti	**2.0**	**3.0**
Glyceryl monostearate	**9.0**	**13.0**
Glycerin	**12.0**	**10.0**
Triethanolamine alkaryl sulfonate	**...**	**10.0**
Polyethylene glycol monostearate	**5.0**	**...**
Polyoxyethylene sorbitan mono-palmitate	**2.0**	**3.0**
Titanium dioxide	**1.0**	**1.0**
Water	**52.0**	**44.0**
Aluminum sulfate	**10.0**	**10.0**
Sodium zirconium lactate	**5.0**	**5.0**

Prolonged Action Pharmaceuticals

U. S. Patent 2,738,303 was issued March 13, 1956 to R. H. Blythe (assigned to Smith, Kline and French) on an application dated July 18, 1952 for a "Sympathomimetic Preparation;" this is the first patent issued on the Spansule line of preparations. The first claim covers a therapeutic preparation in dosage unit form comprising a capsule containing an initial dosage of sympathomimetic to provide a minimum of 50 pellets containing the selected sympathomimetic in an amount of about 200 to 400 per cent of the initial dosage and having ingestible coatings resistant to disintegration in the gastro-intestinal tract, the coating being of variable thickness to provide for the gradual release of the selected sympathomimetic and to maintain a substantially constant body level of the selected sympathomimetic over a period of about three hours. Prolonged release is attained by coating the active ingredient on to sugar pellets followed by a coating of glyceryl monostearate and beeswax. Using four groups of pellets in the capsule, the first group may have no coating, the second will have the addition of 10 per cent of the coating, the third an additional 10 per cent, and the fourth an additional 10 per cent. The various groups will thus make available the active medicament at a different time to the G. I. tract.

Oral Suntan and Antiperspirant

"The Wall Street Journal" of April 11, 1956 ran a story on the use of 8-methoxypsoralen in the form of tablets to prevent sunburn. This was also pointed out in the "Compounders Corner" in the October 1955 issue of this magazine, with a warning as to possible harmful side reactions from the use of the compound. This possibility was also mentioned in the newspaper story, which gave a good summary of current information on the matter. Although something useful and important for the cosmetic industry may well eventually come from this present work, we believe that much careful investigation will have to precede introduction of 8-methoxypsoralen, or a related or similar compound, to an unrestricted mass market.

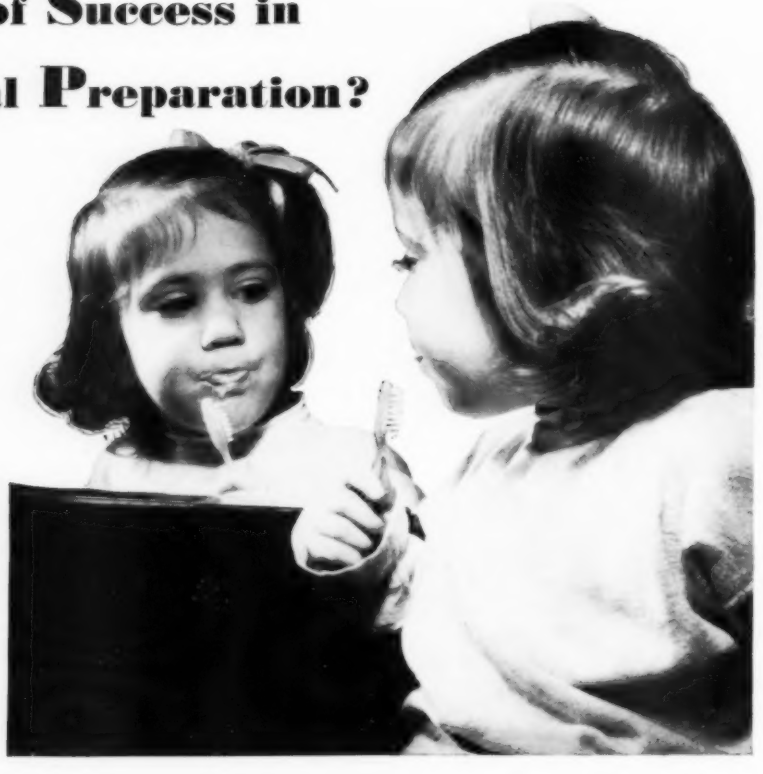
Along the same lines, we know, as is known to most physicians and to many others, that it is possible to retard and even stop perspiration by means of tablets taken by mouth, and some people have used such preparations without apparent harm. The compounds are the so-called anticholinergic drugs, atropine and synthetic compounds with a similar pharmacologic action. Atropine itself is very poisonous and small overdoses can cause serious consequences; the synthetics are somewhat safer, but still cause disturbing side-reactions even when they are used under medical supervision. Here again, research may come up with a preparation that is safe and effective as an oral antiperspirant, but major emphasis must, of course, be placed upon safety. We still favor the topical approach in physiological deodorants, as we expounded in an article in the November 1955 issue of this magazine, as offering an approach with considerable promise.

Film-Coating Tablets

Previous work using sodium carboxymethylcellulose and hydroxyethylcellulose had indicated that most of the reasons for coating tablets could be satisfied with a very thin film and that use of a thin film offered many advantages over the traditional sugar coating.

Zein is a protein extracted from corn gluten. It is insoluble in water and is soluble in certain organic solvents such as 91 per cent isopropanol. It is resistant to microbial attack. It is considered to be nontoxic and suitable for use in functional coatings involving the ingestion of relatively small amounts of material.

Is the Taste of Success in Your Dental Preparation?



This critical scrutiny mirrors the acid test of a dental cream. If she doesn't like it . . . she won't use it without a fight . . . and mother will look around for one she'll easily accept. The same criterion, with a somewhat less violent physical reaction, can be applied to her adult counterparts. They'll buy it if they like the taste . . . and a good, compatible, and psychologically "wearing" flavor doesn't just happen. Nor is it simply transplanted from some other popular product. The right flavor for your dentifrice must be formulated with the same exactness and loving care as the product itself . . . with the same amount of technical skill and know-how applied. The D&O Flavor Laboratories will place their product development department at the service of manufacturers seeking such a "sales-clinching" flavor. Let D&O put the "taste of success" into your dental or oral preparation.

Write for copy of new catalog of flavors and seasonings.

Essentially for you

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Flavor Bases
Dry Soluble Seasonings

In a typical experiment in the present work by E. P. Winters and D. L. Deardorff (*J. Am. Pharm Assoc. Sci.* Ed. 45: 125, 1956) the coating fluid was 15 per cent zein, three per cent polyoxyethylene sorbitan monolaurate, and 82 per cent of 91 per cent (v/v) isopropanol. A total of five coats (90 cc.) had been applied. The total time required was about fifteen minutes. There was no use of prime coat, dusting powder, syrup, extended aging, or oven treatment. The tablets and coating fluid were not warmed before treatment.

Preliminary tests have been carried out comparing tablets so treated with a variety of uncoated and sugar-coated tablets. The tests indicate that this thin film shows promise of giving the following results depending on the characteristics of the original tablet.

When compared to a variety of commercial sugar-coated tablets, the zein-coated tablets seem to exhibit greater resistance to: abrasion, high humidity, high temperatures. There was a substantial decrease in disintegration time. When comparing zein-coated tablets with uncoated tablets of the same formulation, the zein-coated tablets seem to show masking of: unpleasant odor, and unpleasant taste (zein-coated aspirin can usually be held in the mouth for two minutes before the taste of aspirin can be noted); increase in luster; greater resistance to abrasion; and a slight increase in disintegration time.

Inspection of the zein-coated tablets shows they retain substantially their original appearance, retain the grooves and emblems initially present, substantially the original tablet weight (1-5 mg. weight gain), weight constancy, shape, and size. The latter factor enhances the ease of swallowing the tablet, compared to the same tablet if made larger by sugar coating.

Consideration of other factors indicates substantial reduction in: coating time and cost, variety of equipment, equipment duplication, space required for equipment, tablet and container size, shipping weight, and storage space, compared to sugar-coated tablet.

Such zein-coated tablets can readily be given an ordinary polishing coat of wax in a few minutes by a standard method. No extended aging is needed before polishing. Application of a film of wax in some instances further increases luster and resistance to high humidity.

It seems probable that many tablet formulations have their own unique coloring problem to be solved. In this work a fluid containing 15 per cent zein, three per cent polyoxyethylene sorbitan monlaurate, and 0.03 per cent F. D. C. Red No. 3 dye in 91 per cent isopropanol has given coatings of homogeneous appearance on starch-lactos placebos. The use of colored fluids can also result in a rather unique strongly variegated coating.

Hydrocarbon Gels

Petrolatum is probably the most widely used ointment base. Because it is a natural product and subject to variations in methods of refinement, the official product may vary from a hard, sticky grease to a very soft low-melting gel. This is due to variations in the relative proportion of oil/crystalline wax/amorphous wax. Hydrocarbon gels can be formed by the addition of various waxes to mineral oil. It is shown by M. N. Mutimer, C. Riffkin, J. A. Hill and G. N. Cyr (*J. Am. Pharm. Assoc. Sci. Ed.* 45:101, 1956) that good hydrocarbon gels result only with optimum proportions of crystalline and amorphous wax dispersed in the oil phase. For chemical inertness, the waxes and oil should preferably be hydrocarbon in nature.

Polyethylene, a hydrocarbon, is capable of forming a gel with mineral oil when properly treated. The best gel is formed when polyethylene having a molecular weight of 21,000 is dissolved in heavy mineral oil of 340-second viscosity and the solution cooled at the rate of about 10° per second from just above its cloud point to just below its gel point. The polyethylene precipitates as small crystallites surrounded by long filaments of amorphous resin. These small crystallites are close enough to allow the long fibers to intermesh and produce a sponge-like structure which holds the oil.

Ointment Consistency

A method is described by R. N. Havemeyer (*J. Am. Pharm. Assoc. Sci. Ed.* 45:121, 1956) to designate the consistency of an ointment by a graphical plot and a numerical value. The apparatus simulates the pressure applied and the shearing action involved when ointments are spread. It incorporates a temperature control device and an automatic timing mechanism. Statistical analyses indicate a relative lack of difference in the data obtained for any one ointment, regardless of age, but there is a distinct difference in the data from ointment to ointment among the five tested. The apparatus described may facilitate the study of the effects of temperature and changes in formulation upon consistency.

Comment: Application of this procedure to cosmetic creams is obvious, and the original paper should be consulted for details.

Emulsion Stability

The stability characteristics of oil-in-water emulsions prepared from four oils have been studied by J. D. Mullins and C. H. Becker (*J. Am. Pharm. Assoc. Sci. Ed.* 45:105, 1956). Emulsions of each oil were prepared with two emulsifying agents, acacia and blends of Tween 80 and Arlacel C.

The effect of two-stage homogenization on stability characteristics has been investigated. A size frequency method of analysis was used to evaluate stability.

The magnitude of specific interfacial area increased at a constant rate with increased homogenization pressure. The increase was similar regardless of the oil constituting the internal phase.

In emulsions stabilized with Tween 80 and Arlacel C, decrease in specific interfacial area was found to be approximately linear with respect to time.

In emulsions stabilized with Tween 80 and Arlacel C deterioration by globule coalescence took place only to a limited extent. Free oil was observed in many cases even though globules of the internal phase greater than 7-8 microns in diameter were very rare.

Emulsions stabilized with acacia were characterized by comparatively lower specific interfacial area than in the corresponding Tween - Arlacel stabilized emulsions. This was due to the increased frequency of relatively large oil globules.

Deterioration in acacia - stabilized emulsions took place at a decreasing rate with time. With one exception, deterioration was accomplished by globule coalescence only. Free oil was observed in cod liver oil emulsions after 60 days' storage.

The viscosity of the emulsions studied was not influenced by changes in specific interfacial area nor constituents of the internal phase. Viscosity did vary with the emulsifier used.

Ritalin (Ciba Pharmaceutical Products, Inc.) is methyl phenidylacetate hydrochloride and is a mild psychomotor stimulant indicated in chronic fatigue and depressed states, including those associated with reserpine or chlorpromazine therapy. It is available as 5 and 10 mg. tablets in bottles of 100, 500 and 1,000 and as 20 mg. tablets in bottles of 100 and 1,000.

INSIDE SCIENCE

The Vital Story of Vitamin B_1

(Thiamine)

by Science Writer

History. The discovery of vitamin B_1 resulted from research into the cause of beriberi. Almost 50 years passed between Eijkman's discovery of the relationship of the disease to diet and the famous work of Jansen and Donath who first isolated the crystalline vitamin from rice bran.

Within ten years of that first isolation the vitamin's chemical structure was determined and it was successfully synthesized.

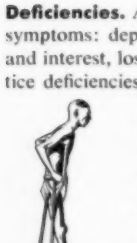
Eijkman's work resulted in the development of a theory that beriberi was caused by a lack of some factor in the diet and not by a toxin or infectious agent. This idea was not readily accepted until the growth of dietary knowledge proved it correct.

Isolation and Synthesis. In 1926 Profs. Jansen and Donath accomplished the isolation of crystalline vitamin B_1 from rice bran. In 1931 Windaus and co-workers successfully isolated pure vitamin B_1 and established its empirical formula. In 1936 R. R. Williams, and independently R. Grewe, explained the vitamin's chemical structure. That year, R. R. Williams and J. K. Cline accomplished the synthesis of thiamine which is in wide use today. Andersag and Westphal also synthesized the vitamin in 1936. Another synthesis was described by Bergel and Todd in 1937.

Photomicrograph of B_1 crystals

Chemical and Physical Properties. Thiamine hydrochloride is white, water soluble, with a nut-like, salty taste and yeast-like odor. Its empirical formula is: $C_{12}H_{17}ClN_4OS \cdot HCl$. Thiamine produced by synthesis is identical chemically and in biological activity with that obtained in pure form from nature.

Deficiencies. A deficiency of thiamine is characterized by these symptoms: depression, irritability, fearfulness, lack of initiative and interest, loss of appetite. Symptoms vary since in usual practice deficiencies of other water-soluble vitamins occur. Medical treatment is simple: a sufficient amount of thiamine is administered to relieve symptoms quickly and the physician provides for a continuing adequate intake.



Beriberi victim

A severe deficiency of thiamine leads to beriberi, a serious and sometimes fatal disease. While beriberi is almost a medical curiosity in the United States, it is common in countries in which polished white rice is a staple of the diet.

Human Nutrition Requirements. Thiamine is one of the nutritive elements the human body needs daily and does not store in quantity. The minimum daily requirements established by the U. S. Food and Drug Administration for the prevention of symptoms of thiamine deficiency disease are:

Adults	1.00 mg.	Children (1-5 incl.)	0.50 mg.
Infants	0.25 mg.	Children (6-11 incl.)	0.75 mg.

The Food and Nutrition Board of the National Research Council recommends the following dietary intake of thiamine for healthy persons in the U. S. A.

Recommended Daily Intake in Milligrams

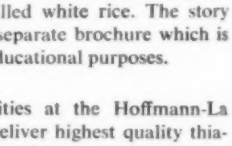
Age	*Men*	*Women*
25	1.6	1.2
45	1.5	1.1
65	1.3	1.0
Pregnant (3rd trimester)		1.5
Lactating		1.5

The Council recommendations for infants and children vary below and above these figures, based on age and sex. Various illnesses and stress situations can exhaust vital reserves of thiamine. So, for the physician, vitamin B_1 is prepared in various dosage forms and potencies for therapeutic and prophylatic use.

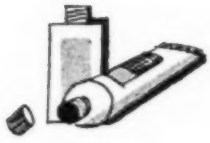
How do human beings receive thiamine? It is widely distributed in foods of animal and vegetable origin, particularly cereal grains and dry legumes. Because of public demand for refined products which millers must meet for obvious economic reasons, a loss of thiamine and other factors occurs during processing. The thiamine loss is overcome through the use of *enrichment* in cereal grain products for which Federal Standards exist, or in other foods such as breakfast cereals, by *fortification* or *restoration*. When enriching, fortifying or restoring, the food processor adds the necessary amount of pure thiamine (and other vitamins and minerals) to the food so that the finished product meets Federal, state and territorial requirements or contributes to the consumer an amount of the vitamin which dietary experts believe significantly useful.

Thiamine is extensively used for the enrichment of cereal grain foods such as white flour, white bread and rolls, macaroni products, farina, corn grits and meal, milled white rice. The story of these uses is delightfully told in a separate brochure which is available on request for reference or educational purposes.

Production. Huge production facilities at the Hoffmann-La Roche plant in Nutley, New Jersey, deliver highest quality thiamine *by the tons*. Roche manufactures thiamine hydrochloride and thiamine mononitrate. These fine products, which equal or exceed U.S.P. specifications, are ideal for use by pharmaceutical makers and food processors. Years of experience in research and manufacture have made Roche the leader in vitamins.



This article is published in the interests of pharmaceutical manufacturers, and of food processors who make their good foods better with essential, health-giving vitamin B_1. Reprints of this and others in the series are available on request. Write the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.



Advancing Therapy

Motion Sickness

A five-month study of 26 anti-motion sickness drugs among almost 17,000 servicemen, showed that 11 of them were helpful and three of these were more effective than the rest.

The study was reported in the March 3 Journal of the American Medical Association by an Army, Navy, and Air Force motion sickness team.

The study showed that susceptibility to seasickness decreased with age; that individuals quartered fore and aft were more susceptible than those in midship; that heavier individuals were slightly, but not significantly, more susceptible than their lighter colleagues. The activities of the men while on board had no relation to their susceptibility to illness.

The top three drugs by trade name are Bonamine, Phenergan, and Marezine when given three times daily. All showed prolonged activity.

Four other effective drugs by trade name are Dramamine, Parsidol, Benadryl, and Trimeton. While effective, they were less so than the top three. Four drugs found to work for the first time are UCB 158, Cogentin, Vibazine, and Sandostene.

The duration of action of Bonamine was clearly longer than that of the other drugs tested. So for a long sea voyage, where it may be necessary to use drugs for several days, Bonamine seems to be the drug of choice, the team said.

For shorter sea voyages and for most air travel, where protection is needed for only a few hours, a single dose of Bonamine, Marezine, or Phenergan should be equally effective, the team said.

The rest of the compounds tested were found to be ineffective. These included vitamins and some of the new tranquilizing drugs.

The most side effects were caused by drugs considered to be unsatisfactory by the team. Among effective compounds, Cogentin caused drowsiness, dry mouth, and blurred vision; Parsidol, dry mouth and drowsiness, and Phenergan, drowsiness. No other effective agent showed any more side effects than did placebos.

Live Polio Virus Immunization

A recent study has given further evidence that live polio viruses given by mouth may some day be used for immunization against the disease—but only after slow, steady, and cautious research.

The investigation, initiated by Lederle Laboratories, Pearl River, N. Y. is reported in the March 17 Journal of the American Medical Association. It is one of a series of studies by a group of New York and California researchers on the possibilities of using live, attenuated polio viruses.

"A certain amount of optimism" about the eventual usefulness of the method is justified by the findings of the study, they said. The idea of live virus immunization can be advocated only if all the persons receiving the virus respond by forming antibodies. All the children studied did.

Because the viruses live in the intestinal tract and may act as sources of contagion, public health authorities have objected to the widespread use of live, attenuated viruses in clinical trials. But the study showed that SM attenuated viruses "are not very contagious," the authors said.

It appeared that capsules may be the best way to administer the viruses and prevent contagion. By using capsules, the mouth and throat are bypassed and only the lower end of the alimentary tract is left as a source of contagion. The practice of simple personal hygiene may completely prevent transmission of the viruses.

The future of live virus immunization is bright. The number of immunizations (150 children with SM strain and 75 with TN strain) without accident has given "increased confidence" in the use of certain live, attenuated strains.

"With this slow, but steady and cautious, progress in research, it is hoped that one day the living, attenuated viruses will find their proper place in the line of combat against poliomyelitis."

Muscle Relaxant

Four preliminary reports on a new muscle relaxant, which in its experimental stage shows promise of bringing comfort in several diseases, appear in the Journal of the American Medical Association, 160:742, 1956.

The compound zoxalolamine (Flexin) has several advantages over older drugs used to relieve persistent muscle spasms, but further study is necessary to determine the extent of its usefulness, all the reports said.

The studies showed possible use of the drug for patients suffering spasticity, various rheumatic and arthritic diseases, and diseases of the brain and spinal cord, and for children with cerebral palsy.

Dr. W. Amols gave the compound, in combination with chlorpromazine, a tranquilizing agent, to 28 patients with a variety of neurological disorders involving the voluntary muscles. The major benefit was relief from the discomfort and inconvenience of the spasms, but many patients said the drug caused weakness in their limbs, which impaired their ability to get around.

The drug was especially effective in relieving stiffness and aching from rheumatic diseases, Drs. Richard T. Smith, Kenneth M. Kron, William P. Peak, and Irvin F. Hermann, Philadelphia, said.

Complete relief was obtained in some patients within 30 minutes after swallowing the pill, and partial relief in others within 60 minutes.

Patients with rheumatoid spondylitis, a form of arthritis affecting the vertebrae, received the best over-all relief from muscle spasm, with 15 of 16 patients benefiting.

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The most common unfavorable side effects were associated with the gastrointestinal tract and equilibrium. Some patients overcame them and continued taking the drug, but 13 had to discontinue the drug because of the severity of the side effects. Chills and fever, burning and tearing of the eyes, and skin rash also were noted.

The long range effectiveness of the drug in improving muscular function in cerebral palsied children is not yet clear, although its results in 15 of 28 children were encouraging, Drs. Edwin H. Abrahamsen and Henry W. Baird III, Philadelphia, said. It produced relaxation in 10 other children, but caused unfavorable side effects in eight of them. Burning taste, loss of appetite, vomiting, and too much relaxation were noted in 15 of the 28.

Seventy patients with spasticity and other forms of uncontrolled muscular activity resulting from disease in the spinal cord or brain took the drug under the direction of Drs. Manuel Rodriguez-Gomez, Antonio Valdes-Rodriguez, and Arthur L. Drew, Ann Arbor, Mich.

The relaxing effect was best in patients with lesions in the spinal cord, especially multiple sclerosis. The effect on patients with diseases affecting the brain, especially paralysis agitans (Parkinson's disease) and hemiplegia was less predictable. In some instances the drug made the symptoms worse and in others greatly improved the condition.

Gastric irritation, nausea and vomiting, and drowsiness were produced by high doses of the drug, they said.

Treating Hodgkin's Disease

Among the aliphatic chloroethylamines, 2 - chloropropyl - di - (2 - chloroethyl)amine hydrochloride (novoembichin), with a milder side-effect upon the gastro-intestinal tract and a weaker action on the bone marrow than other compounds of the series, is the most suitable drug for the treatment of Hodgkin's disease, according to L. F. Larionov (*Brit. Med. J.* p. 252, 1956).

Treatment with chloroethylamines should be given not only in the advanced stage of the disease when *x*-ray therapy has proved unsuccessful, but also in the early stages.

With such treatment, provided it is given in the early stages and according to a rational method, positive remote results—that is, preservation of life and working capacity for more than five years from the beginning of treatment—may be obtained in 50 per cent of cases.

The immediate and late results of chloroethylamine treatment of early cases of Hodgkin's disease are at least as good as those of *x*-ray therapy.

A new drug—2:6-dioxy-4-methyl-5-(2 - chloroethyl) aminopyrimidine (dopan)—has been developed which, as it can be administered orally and has only a slightly toxic action on the gastrointestinal tract, renders the chemotherapy of Hodgkin's disease more convenient for the patient, one tablet being given twice weekly for three to five weeks.

Inversine

National distribution of "Inversine," a highly effective new product for control of hypertension was announced by Sharp & Dohme, Division of Merck & Co., Inc.

According to clinical investigators, "Inversine" is 10 to 90 times more potent than other medicinals used to reduce high blood pressure and represents "a most important advance in the field of hypertension."

"Inversine" (macamylamine hydrochloride) is an entirely new compound synthesized in the Merck Sharp & Dohme Research Laboratories. It is a ganglionic blocking agent, so called because it acts in the body by chemically blocking off nerve impulses which constrict blood vessels.

According to clinicians, the blocking action of "Inversine" lasts up to 20 times longer than that of other compounds now commonly used to treat hypertension. Unlike these drugs, it may be taken by mouth and is fully effective by this route. The compound is 3-methylaminoisocamphane.

New Male Hormone

Synthesis of a new male sex hormone, Halotestin, far more potent than any now available in human therapy, was reported at the annual meeting of the American Chemical Society in Dallas by Dr. John C. Babcock, of The Upjohn Company.

Dr. Babcock, reporting for a chemical team including Milton Herr, and biologists including Dr. Robert O. Stafford and Stanley Lyster, said the new hormone is now undergoing clinical trials in human therapy. He added that "preliminary results look promising and indicate that this new hormone is considerably more potent than methyltestosterone without producing undesirable side effects."

Androgens have been found to play a key role in growth and aging processes as well as in the control of sex characteristics. They are believed to play a role also in the efficient utilization of food-energy for maintaining muscle tone, bone strength and a feeling of well-being. As general metabolic stimulants, the androgens have been used to combat the debilitating effects of serious illness.

Dr. Babcock said Upjohn biologists found that Halotestin is 10 times as potent an androgen as methyltestosterone by standard tests and 20 times as potent in its ability to induce muscle growth. A related steroid is three times as potent in ability to stimulate muscle-growth and equal to methyltestosterone in androgen effect.

Both compounds were produced by a combined chemical-microbiological synthesis.

Comment: The synthesis of these hormones was reported in the Journal of the American Chemical Society 78:500, 1956 by M. E. Herr, J. A. Hogg and R. H. Levin. Tests for anabolic and androgenic activity, compared with methyltestosterone rated as 1.0 gave values of 20.0 and 9.5 respectively for Halotestin (11β, 17-β dihydroxy - 9α - fluoro - 17 - methyl - 4 - androsten-3-one), 22.0 and 8.5 for 17β-hydroxy - 9α - fluoro - 17 - methyl - 4 - androstene-3,11-dione, and 2.9 and 0.9 for 11β, 17β-dihydroxy-17-methyl-4-androsten-3-one. Comparative figures would have been useful but were not given for methylandrostenediol and dihydrotestosterone which have been advocated for use as anabolic hormones with reduced androgenic activity.

New Pharmaceuticals

Titralac-SP (Schenley Laboratories, Inc.) contains 180 mg. of glycine, 420 mg. of calcium carbonate and 0.5 mg. of homatropine methyl bromide in each tablet. The preparation is intended for the treatment of peptic ulcer and more severe gastrointestinal disturbances and is available in bottles of 100.

Sparine (Wyeth Laboratories), promazine hydrochloride, is an ataractic agent indicated in the management of the acutely agitated patient. It is available as 25, 50 or 100 mg. tablets in bottles of 50 and 500, as 200 mg. tablets in bottles of 500 and for injection in vials containing 2 cc. and 10 cc., each cc. containing 50 mg.

Capilon)Paul Plessner Company) is a bioflavonoid mixture. Each tablet conbins lemon bioflavonoid complex 100 tag., rutin 100 mg. and ascorbic acid s00 mg. The preparation is intended to reduce abnormal capillary fragility and related conditions. It is available in bottles of 100, 500 and 1,000.

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Skin Research

Baldness Cure

An African remedy for baldness was mentioned by Prof. Lawrence Taylor of Hillsdale College at the Central Section meeting of the American Pharmaceutical Manufacturers' Association. It may seem a bit drastic for ordinary use: at any rate, bald heads are shrunk to fit the amount of hair remaining.

Skin Acid

J. J. Zoon, A. Hovenkamp and L. H. Jansen (*Dermatologica*, 112:21, 1956), by titration and by chemical precipitation, investigated the acidity of the epidermis. They concluded that amino acids play a subordinate part in the neutralization of alkali by the skin. This neutralization is mainly due to organic acids, since it is not caused by carbon dioxide or by amino acids. At least 70 to 90 per cent of the organic acid content is lactic acid.

Comment: This specific information with respect to skin acidity should be useful in attempts to reproduce the composition of normal skin secretions and in cosmetic formulations. The sour odor of free lactic acid must be taken into consideration, however, and it may still be advisable to acidify with a non-volatile organic acid of similar ionization constant. Unfortunately, I find no acid among those commonly listed that is really close to the monobasic aliphatic acid lactic acid with an ionization constant of $1.55(10)^{-4}$.

Disulfide-Splitting Agents

Disulfide groups have been shown by Van Scott and Flesch to be present in significantly high and relatively uniform concentrations throughout the epidermis. In view of the work of Rudall, Giroud, and Dirksen, which relates the tonofibrils to keratin by similarities in molecular configuration, the possibility that the fibrillary cytoplasm (tonofibrils) and intercullular bridges contain disulfide groups was investigated by R. B. Stoughton and N. Novak (*J. Invest. Dermatol.* 26:127, 1956). If it be the case that the submicroscopic organization of these fibrillary structures is due, at least in part, to disulfide linkages, then disulfide-splitting agents might cause their disruption. Should the adherence of one epidermal cell to another be a function of the intercellular bridges, the resultant disruption would lead to the separation of cells or to what might be termed "*in vitro* blister formation." Since sulfhydryl compounds are known to cause disulfide reduction, thioglycollic acid, cysteine, and reduced glutathione were used for this purpose.

Cysteine and reduced glutathione cause first, a disruption of intercellular bridges and breakdown of cytoplasmic tonofibrils, and eventually loss of the entire cytoplasm. This effect is more pronounced at a lower pH (3.0-3.3) than at a higher pH (5.0-6.0) and also more pronounced in distilled water than in isotonic saline. HCl solutions at 2.0-2.5 will effect a similar cytolysis. However, HCl solutions at pH 3.0-3.5 will not result in the cytolytic changes seen with cysteine and glutathione in the same pH range. Acetate, phosphate and borate buffers from pH 3.6-8.6 will not elicit cytolytic changes nor will cystine.

If one follows the changes caused by cysteine and glutathione from its early manifestations, the sequence of events is as follows: 1) initially the cells lose the distinct outlines of the intercellular bridges and then start to separate from each other, 2) the fibrillary cytoplasm becomes less distinct and eventually is completely lost until finally 3) the entire cytoplasm is lost leaving only the nuclei. The earliest alterations are more prominent in the basilar and lower rete areas. The upper rete cells seem to be the most resistant.

The damage to the epiderm alcells seen after exposure to sodium thioglycollate (pH 8.5) and borate buffer (pH 8.8) differs from that created by cysteine and glutathione in that there is less destruction of cytoplasmic fibrils, but the intercullar bridges are disrupted and the cells readily separate from each other.

All the changes seen occur more readily at 37° than at 20° C. and are minimal even after long periods of time at 4° C. This gradient of activity at different temperatures holds about equally for cysteine, glutathione, sodium thioglycollate and extremes of pH.

Mild thermal stimuli release an enzymic degradation process which results in the loss of intercellular bridges and cytoplasmic tonofibrils with resltant separation of cells from each other.

The enzymic degradation can be inhibited by sulfhydryl binding agents such as Cu^{++}, Hg^{++}, and Ag^{+}.

Electrolytes—Guillot and Valette

For convenience, most investigations on the percutaneous absorption of electrolytes have been made with ions easy to demonstrate in the blood or urine, and therefore different from the normal constituents of tissues.

Lithium salts have been the subject of a number of studies, usually without result. More recently, Kahlenberg confirmed the negative results in man, not only for the chloride, but also for the borate, oleate, linoleate and caseinates of lithium. The addition of alcohol to solutions of lithum chloride does change the results.

However, lithium, of all cations, has the least ability to traverse the skin; this element is higher on the lyotropic series than potassium and sodium and thus tends to neutralize the electrical charge on the epidermis and cause loss of swelling power.

Moreover, Michaelis has shown that lithium has the least mobility of all ions through collodion membranes; although its atomic weight is lower than that of the other alkali metals it acts toward membranes as if it had a large molecular volume because of electrostatic adhesion of a large number of water molecules.

Kahlenberg also found that the skin was impermeable to salts of rubidium, cesium and strontium.

On the other hand, salts of heavy metals, slightly dissociated and lipid-soluble, are in most cases absorbed by the skin. Liebrich demonstrated the absorption of mercuric chloride from a lanolin ointment. Schwenkenbecher and Macht demonstrated absorption by using ointments or solutions of corrosive sublimate in methyl salicylate. Mercurous chloride is much less well absorbed from ointments than metallic mercury or ammoniated mercury, according to Maloff, Laug et al.

Sussman has noted that lead oleate is absorbed from a 50 per cent ointment by human and cat skin; the quantity absorbed by one square decimeter of skin may attain 0.1 to 0.2 mg. of lead per day, which is enough to cause lead poisoning. Lead acetate is absorbed from alcoholic solutions or from ointments; Voft and Burckhardt noted that even when an aqueous solution of this salt is applied to the skin, lead is found in the stomach and intestines. Laug and Kunze studied, in the rat, the penetration through the skin of various lead salts. Absorption is very weak for the arsenate, definite for the acetate and the oleate and considerable for tetraethyl lead.

Miyasaki observed that bismuth lactate penetrates rabbit skin.

Oil-soluble salts of copper, like the oxyoleate are found in the urine after application to the skin in an ointment, according to Schmid and Winkler.

With respect to anions, Traube-Mengarini demonstrated the penetration of potassium iodide in alcoholic solution into the cornified layer, the capillaries, the lymphs and the sweat glands of the dog. Canals and Gidon applied compresses of potassium iodide with sodium thiosulfate to prevent the liberation of free iodine to human skin and did not detect iodine in the urine. On the other hand, using potassium iodide ointments prepared with fatty excipients (lard, lanolin, stearic acid) or an aqueous base (gelatinous alumina), these authors found urinary excretion of iodine, although in small quantities. To explain the penetration of potassium iodide, the hypothesis has been advanced that iodine is liberated in the epidermis or sebum by the action of oxidizing enzymes or other catalysts. Filehne showed that iodine is liberated from potassium iodide in the presence of lanolin.

Hydrogen sulfide is easily absorbed by the skin. According to Roques, Caujolle and Rey, solutions containing less than two parts per thousand are not absorbed but with more concentrated solutions the absorption is obvious. Under these conditions, the sulfur seems to attack the cornified layer.

Laug and Draize obtained analogous results with ammonium sulfide; after exposure of the skin of animals to the vapors of this substance, the authors detected sulfhemoglobin in the blood and hydrogen sulfide in the expired air.

Boric acid in aqueous solution rapidly penetrates human skin; Kahlenberg and Barwasser showed the presence of boric acid in the urine of subjects whose feet were immersed in saturated solution of boric acid containing 30 per cent of alcohol less than a minute after contact.

Schwenkenbecher showed that potassium cyanide in aqueous solution was toxic to mice when applied to the skin.

We can conclude that cutaneous absorption of electrolytes only takes place in exceptional cases; for physico-chemical reasons, slats dissolved in water cannot penetrate the epidermis. On the other hand, salts of heavy metals, metallic salts of fatty acids, and, in general, slightly ionized and lipid-soluble salts easily travers the epidermis.

Topical Fluorohydrocortisone

In a series of eight cases of contact eczema, electrophoresis with the specific allergen was performed by H. Haxthausen (*J. Invest. Dermatol.* 26:111, 1956) on the back of the subjects. Immediately thereafter two patch tests were applied to the treated area, one with 2½ per cent of the fluor-compound, one with 21½ per cent hydrocortisone acetate in an indifferent ointment base. In two additional cases, hypersensitive to iodine and dinitrochlorobenzene, the provoking substance was simply applied to the skin in alcoholic solution and the patch-tests performed after evaporation of the alcohol. The results were read after 24 and 48 hours and clearly indicate a superiority of the fluor-compound with regard to inhibition of the eczematous reaction; but the effect is not constant and is rarely complete. The search for hydrocortisone derivatives with still better local action should therefore be continued. The stronger effect of the fluor-compound is presumably partly due to a better penetration, whichis perhaps also responsible for the rather serious systemic reactions reported by Fitzpatrick after percutaneous absorption of the compound.

Testosterone Metabolism by Skin

Using samples of human skin, H. H. Wotiz, H. Mescon, H. Doppel and H. M. Lemon (*J. Invest. Dermatol.* 26:113, 1956) incubated them with solutions containing tagged testosterone. The solutions were analyzed and the proportion of testosterone metabolized was thus determined. The studies showed that under these in vitro conditions, testosterone is metabolized by the skin, but differentiation between metabolic rates in the axilla, scalp and back tissues is not clear.

Penicillin Desensitization

A minute subcutaneous dose of either penicillin or streptomycin can specifically prevent the development of both local and remote reaction to handling the same agent for a limited period. Doses ranging from one to 20 units are effective for periods ranging from eight 24 hours. This is an empirical fact the mechanism of which remains obscure. When absolute freedom from symptoms during continued handling has been maintained for a certain time, the patient may remain tolerant for a much longer period without further treatment.

Five case histories are recorded by R. M. Morris-Owen (*Brit. J. Med.* 654, 1956), which in varying settings show: that a minute tolerated subcutaneous dose of either penicillin or streptomycin is able for a limited period to suppress specific allergic reaction to skin contact in handling that particular antibiotic; that continuous suppression of reaction may be secured by maintained daily treatment with such doses to cover an allergic subject's regular handling of either antibiotic; and that after weeks or months of handling on this cover regime the subject is usually found to have acquired a relatively lasting spontaneous tolerance of handling contacts.

Sterisil (Warner-Chilcott) is a "synthobiotic" agent in gel form for the treatment of vaginitis and cervicitis. It is available as a 1½ ounce tube with six disposable applicators. The "synthobiotic" agent is 0.1 per cent of bis-1,3 beta - ethylhexyl - 5 - methyl - 5 - amino-hexahydropyrimidine.

Meti-Derm (Schering Corp.) is a prednisolone cream containing 5 mg. of prednisolone per gram of water-washable base. It is an anti-inflammatory, anti-allergic preparation for topical dermatologic use and is available in tubes containing 10 grams.

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Artificial Sweetener

The National Research Council has published a number of reports concerning the use of chemicals in the production and processing of foods. The most recent of these, "The Safety of Artificial Sweeteners for Use in Foods," reviews available information concerning toxicity of saccharin and the cyclamates, which are widely used sweetening agents.

A great many studies of the biological effects of saccharin have been made. The most extensive of these in man were conducted for the Referee Board of Scientific Advisors to the Secretary of Agriculture in 1911 by Christian Herter and Otto Folin. In these studies, men consumed up to 1.5 gm. of saccharin per day for periods varying from five months for the low intakes to two months for the high intakes. Careful clinical and laboratory examination revealed no significant harmful effects of such intake and in addition showed that saccharin is rapidly excreted unchanged in the urine.

The cyclamates (the sodium and calcium salts of cyclohexylsulfamic acid) have been studied extensively since their introduction for use as sweeteners in 1950. Studies in laboratory animals have revealed no significant adverse effects produced by cyclamate at one per cent of the diet or less. At five per cent of the diet slight toxic effects, mild inanition and moderate diarrhea, are noted.

In healthy men the only observed adverse effect of cyclamate has been softening of stools at intakes of 5 gm. or more per day. Studies with laboratory animals indicate that this effect, which is probably caused by the osmotic activity of cyclamate, seems to be without hazard to health.

This report of the Food Protection Committee concludes, "There is no evidence that use of the nonnutritive sweeteners, saccharin and cyclamates, for special dietary purposes is hazardous." The report emphasizes that knowledge of and experience with the use of cyclamate are more limited than they are with saccharin and that continued study of the material is required before certain questions can be answered.

This valuable report gives a reassuring appraisal of the safety of these sweeteners for special dietary purposes but does not support the unrestricted use of these sweeteners in general purpose foods and beverages.—*J.A.M.A.* 160:875, 1956.

Civet

Civet, known in perfumery from ancient times as a valuable fragrance principle, is one of the more mysterious animal secretions. It is the glandular secretion of *Viverra civetta* and in fresh condition is a dirty, yellow-white color. On exposure to air it becomes darker and thickens to a fatty mass which melts at 36 to 37° C. It is marketed in zebu horns containing up to several kilos.

Civet contains about six to 12 per cent of substances which do not dissolve in organic solvents. About 45 to 65 per cent of the mass is soluble in 95 per cent alcohol. It is possible, according to K. Bergwein (*Dragoco Ber.* 3:65, 1956) to separate the active constituents of civet into two fractions. The distilled portion contains skatol and has a decidedly unpleasant, fecal-like odor. The residue has a musk-like fragrance which is due to civetone, present in the original product to the extent of 2.5 to 3.4 per cent. Civet also contains an alcohol civetol which has little odor but is readily oxidized during aging to civetone.

In a concentrated solution, the skatol note will predominate but on dilution the sweetness of civetone appears. In floral perfumes about 10 to 15 grams of an aged three per cent civet infusion are sufficient for fixing acacia, ambergris, aubepine, cassie, lilac, honeysuckle, heliotrope, jasmine and lily-of-the-valley. For heavier perfumes, the more concentrated civet extracts containing up to 10 per cent of the active agent are used.

Polish Essential Oils

Polish essential oil exports are increasing rapidly, with great possibilities of further development. Essential oils are today being exported from Poland to a number of countries.

The following is a list of the different essential oils produced in Poland.

Polish peppermint oil is colorless or very pale yellow, transparent, with an aroma of menthol and a stinging, cooling flavor.

Specific gravity
0.897 to 0.920 at 20° C
Optical rotation (20°), —18° to —34°
Refractive Index (20°), 1.458 to 1.464
Reaction
neutral or at most slightly acid
Menthol content
minimum, 50 per cent

Solubility in alcohol: 1ml peppermint oil dissolves in 2.5 to 5ml 70 per cent alcohol, giving a clear solution which may, by further addition of 70 per cent alcohol, be opalescent without producing any noticeable turbidity.

The whole output of this essential oil is based on Polish plantations of Mentha piperita.

Polish fir needle oil is obtained from one-year old shoots of the Abies alba fir. This oil is transparent, colorless or greenish yellow with a balsamic aroma and a bitter, burning taste.

Specific gravity
0.867 to 0.886 at 15° C
Optical rotation (20°), —30° to —60°
Refractive index (20°), 1.470 to 1.474
Reaction
neutral or at most slightly acid

Solubility in alcohol: 1ml oil dissolved

in 4 to 7ml 90 per cent alcohol gives a clear solution.

Polish pine needl eoil is obtained from fresh needles of the Pinus silvestris pine.

Polish pine needle oil is clear, colorless or light yellowish-green; it has a pleasant balsamic aroma and a sharp taste.

Specific gravity
0.865 to 0.886 at 15° C
Optical rotation (20°), +2° to +13°
Refraction index (20°), 1.474 to 1.480
Reaction
neutral or at most slightly acid

Solubility in alcohol: 1ml oil dissolved in 7ml 90 per cent alcohol gives a transparent solution.

Polish juniper oil is obtained from the fresh berries of the common juniper, Juniperus communis. Its principal components are: pinene, camphene, terpineol and cadinene.

Polish juniper oil is a colorless liquid, yellowish or greenish in color, clear, with a specific aroma and a bitter, burning taste.

Specific gravity
0.860 to 0.882 at 20° C
Optical rotation (20°)
+10° to —15°, in relatively rare instances, dextrorotatory
Refractive index (20°), 1.472 to 1.488
Reaction
neutral or at most slightly acid

Solubility in alcohol: 1ml oil dissolves in 11ml 90 per cent alcohol giving a transparent or at most slightly turbid solution.

Polish calamus oil is made from the rootstocks of the common calamus plant, Acorus calamus.

Calamus oil is clear, yellow or brownish-yellow with a characteristic, aromatic smell and a bitter, burning taste.

Specific gravity
0.955 to 0.966 at 15° C
Optical rotation (20°), +9 to +31°
Refractive index (20°), 1.496 to 1.509

Solubility in alcohol: 2 ml oil dissolved in 1ml 90 per cent alcohol gives a clear solution.

Polish dill oil is obtained from the ripe seed grains of dill, Foeniculum vulgare. Dill oil is clear, colorless or at most yellowish, with a specific dill odor and a sweetish taste, reminiscent of camphor.

Specific gravity
0.951 to 0.971 at 15° C
Optical rotation (20°0, +11° to +24°
Refraction index (20°), 1.528 to 1.539
Setting point..... +4° to +10° C

Solubility in alcohol: 1ml oil completely dissolves in 1ml 90 per cent alcohol.

Polish coriander oil is obtained, by means of double distillation, from the ripe seed grains of the coriander, Coriandrum sativum. It is clear, colorless or light yellow, with an aroma of ripe coriander fruit and a spicy, non-bitter taste.

Specific gravity
0.864 to 0.885 at 15° C
Optical rotation (20°), +8° to +14°
Refraction index (20°), 1.463 to 1.476
Reaction
neutral or at most slightly acid

Solubility in alcohol: 1ml oil dissolves in 3ml 70 per cent alcohol giving a clear solution.

The ester number is not less than 125 and not above 190, which corresponds to a content of not less than 43 per cent of alcohols in coriander oil, calculated as linalool.

Polish thyme oil is obtained from the flowering thyme herb, Thymus vulgaris.

Thyme oil is clear, yellowish or reddish brown, with a strong thyme aroma and a pleasant, sharp, spicy, persistent taste.

Specific gravity
0.900 to 0.935 at 15° C
Optical rotation (20°)
from 0° to —4°
Refractive index (20°), 1.490 to 1.510
Reaction
neutral or at most slightly acid
Thymol content
between 20 and 40 per cent by volume

Solubility in alcohol: 1ml oil dissolved in 3ml 80 per cent alcohol gives a clear solution.

Polish terpineol is an oily liquid with a pleasant aroma. Chemical composition is $C_{10}H_{17}OH$. Commercial terpineol contains a mixture of terpineol isomers.

Specific gravity
0.934 to 0.938 at 15° C
Refractive index (20°), 1.482 to 1.486

It is, at present, being exported to a large number of countries.

Terpinyl acetate is an oily liquid of chemical composition: $C_{12}H_{22}O_2$.

The commercial product contains 85 to 95 per cent terpinyl acetate, with a remainder of terpinol and dipentene.

Specific gravity
0.950 to 0.960 at 15° C
Refractive index (20°), 1.466 to 1.472
—*P.E.O.R.* 47:92, 1956.

Comment; It should do no harm to look at specifications being offered by potential competition.

Aerosol Perfumes

According to H. Streatfield (*S.P.C.* 29:67, 1956), probably the most important single factor in the production of aerosol perfumes and, in fact, in the use of any kind of perfume in an aerosol product, is the stability of the perfumery materials in the aerosol system. It is well known that soap perfumes have to be specially made for the job, if really satisfactory results are to be obtained. The same applies to face powder perfumes, where preferential adsorption, absorption and peculiar liability to oxidation are all apt to exert a detrimental effect. The problem of building up a perfume that will "live" in the unfriendly environment of the aerosol system is difficult. No firm should attempt to use in aerosols a perfume that has not been specially devised for the purpose.

Important factors are the internal pressure, solubility, compatibility, possibility of corrosion, inflammability aspects, and the type of spray required. Perfumes should not be sprayed at close range, as the residual odor of the propellant is apt to cling to the skin. Directions should be included to the effect that they should be sprayed at a distance of about a foot (or whatever the chemist-in-charge may himself calculate).

Unicap Therapeutic Tablets (The Upjohn Company) contain vitamin A 5000 units, vitamin D 500 units, 150 mg. ascorbic acid, 10 mg. thiamine mononitrate, 10 mg. riboflavin, 2 mg. pyridoxine hydrochloride, 20 mg. calcium pantothenate, 100 mg. nicotinamide, 4 mcg. vitamin B_{12} activity, 1.5 mg. folic acid, 0.1 mg. cobalt, 1 mg. copper, 10 mg. iron, 1 mg. manganese, 0.2 mg. molybdenum, 1.5 mg. zinc, 6 mg. magnesium, 5 mg. potassium, 0.15 mg. iodine, 60 mg. calcium. The tablets are available in bottles of 30, 100 and 500.

Ecolid (Ciba Pharmaceutical Products, Inc.) chlorisondamine chloride, is 4,5,6,7 - tetrachloro - 2(2 - dimethylaminoethyl)-isoindoline dimethochloraminoethyl) - isoindoline dimethochloride and is a new, potent, orally effective ganglionic blocker recommended for the treatment of the more severe forms of hypertension. It is available as 25 mg. and 50 mg. tablets in bottles of 100.

Trade Literature

Heavy Duty Scales

Richardson Scale Company, Van Houten Avenue, Clifton, N. J., has issued a six page bulletin (8946A) describing three models of the Class 38 automatic weighing unit for bulk materials. These heavy duty scales are designed to handle dry, ground, granular, dusty and non-free-flowing materials such as ground feeds, salt, coffee, malt, and similar products. The bulletin discusses construction, operation, feeding arrangements, and capacities. Gravity, belt, screw and vibrating feed arrangements are shown in diagram.

Flourides and Teeth

The Procter & Gamble Company, Cincinnati 1, Ohio, has issued a booklet entitled A Summary of Facts about Tooth Paste with Fluoristan for the Profession. In addition to much other information, the booklet contains a list of communities whose natural water supplies contain more than 1.5 parts per million of fluoride, as well as bibliography on dental caries and fluorides.

Ultraviolet Light Absorbers

Antara Chemicals, General Aniline & Film Corporation, 435 Hudson Street, New York 14, has issued a 20-page booklet describing its ultraviolet light absorbers, Uvinuls. It gives information on Uvinul 400 and 490, as well as on two new ones, Uvinul D-49 and M-40.

Ethers and Oxides

Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17, has issued a 64-page booklet titled Ethers and Oxides (F-4764). The book discusses applications of 32 products including ethylene oxide and propylene oxide.

Standard Drug Catalogs

The National Wholesale Druggists Association, 60 East 42 Street, New York 17, has published a 16-page brochure titled Standard Drug Catalogs, which is designed for manufacturers' use in supplying product and price information to their wholesale and retail distributors.

The House of Magnus

Magnus, Mabee & Reynard, 16 Desbrosses Street, New York 13, is now publishing a newsy periodical titled The House of Magnus. It is available in three editions devoted respectively to the interests of the drug and cosmetic industry, the food industry, and the chemical specialties and related products industry. The format of this new publication resembles that of the company's well - known Flavor Pointer, started 13 years ago for the confectionary industry.

Aerosol Space Deodorants

Available for distribution is the second of a series of Aerosol Bulletins (Bulletin No. 2) from the Aerosol Testing Laboratories of Dodge & Olcott, Inc., 180 Varick Street, New York 14. Called Fragrances for Space Deodorants, it discusses the growth of this particular segment of the aerosol field.

Surfactants

Carbide and Carbon Chemicals Company, 30 East 42 Street, New York 17, has published a new 40-page data booklet on Tergitol surfactants. Seven nonionics and four anionics are described.

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Industry's Books...

An Encyclopedia of the Chemical Process Industries, *by Jeffrey R. Stewart, F.A.I.C., Chemical Engineer, and Frances E. Spicer, 820 pp., Chemical Publishing Co., Inc., New York, (1956), cloth,* **$10.**

This treats the practical aspects: raw materials, processes, equipment and finished products of the chemical process industries in an encyclopedic form. It also lists definitions of technical and scientific terms which are frequently encountered in these industries. As it lists the manufacturers and uses of trade-name and trade-market products, it should also serve as a buyers' guide to chemists and consumers

Handbook of Poisons, *by Robert H. Dreisbach, M.D., Ph.D., Professor of Pharmacology, Stanford University School of Medicine, Lange Medical Publications, Los Altos, Calif., (1955), Pocket size, Flex. Binding,* **$3.**

The purpose of this handbook is to provide a concise summary of the diagnosis and treatment of clinically important poisons. Poisons have been organized into industrial, agricultural, household, medicinal, and natural hazards, since this method allows considerable correlation of poisons with types of exposure. The necessity of such a book has grown out of the rapidly expanding importance of chemical products in industrial, agricultural, and domestic processes.

Pharmaceutical Formulas Vol. II, *Eleventh Ed., 952 pp., The Chemist and Druggist, London, (1956), cloth, 42s.*

This book has now reached its eleventh edition. Of the 897 pages of formulas, 300 pages are devoted to formulas for perfumes, cosmetics and toilet preparations. Other main sections of the book include culinary and household requisites, beverages, cleaning materials, polishes, varnishes and lacquers, adhesives, writing materials, photographic chemicals, horticultural and agricultural preparations, pest exterminators and products for domestic pets.

Lilly Dache's Glamour Book, *by Lilly Dache, Edited by Dorothy Roe Lewis, 315 pp., J. B. Lippincott Co., Phila., (1956), cloth,* **$3.95.**

Lilly Dache explains the finer points of this illusive thing called glamour with such contagious enthusiasm that you find yourself making a mental checkup on your outlook on life, your face, your figure, your hair, your clothes, your posture, your speaking voice, your home, and the man in your life! Here is the secret of personal expression in your makeup, your clothes, your home and manners—to make you stand out from the crowd.

Economic Geography of Industrial Materials *Edited by Albert S. Carlson, Department of Geography, Dartmouth College, 494 pp., Illus., Reinhold Publishing Corp., New York, (1956), cloth,* **$12.50.**

Each chapter of this work, with maps, tables, charts and statistics, describes economic-geographic conditions necessary for profitable production. Such factors as location, climate, soil, topography, water resources, minerals, fuels, labor, capital, management, transportation and markets are discussed and evaluated to show profitable trends and conditions at present and in the future. Industrial management will find this book valuable as a means of studying its product, process and location attributes in the light of current and future economic conditions in its locality, in its country and in the world.

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Readers' Questions . . .

Hair Pomades: *Several hair pomades I have examined report on their labels the presence of castor oil, olive oil, lanolin or absorption base. Can you suggest the proportions of these ingredients to be used in preparing a pomade and what preservative should be used?* NEW ORLEANS.

If the preparations contain only the mentioned ingredients, water must be present to improve the texture and provide body to the mixture, a water-in-oil emulsion being formed. As a first attempt I would suggest you try the following:

Lanolin	**59.0**
Olive oil	**10.0**
Castor oil	**5.0**
Preservative	**0.2**
Perfume	**0.8**
Water	**25.0**

Actually, this preparation would be somewhat sticky and could be substantially improved by the replacement of 20 parts of lanolin by an equal amount of petrolatum or a mixture of petrolatum and mineral oil. The preservative should be an antioxidant such as propyl gallate or butylated hydroxyanisole.

Soluble Tincture Benzoin: *Please advise me how I can make Tr. Benzoin Compound U.S.P. water-soluble.* NEW YORK.

Other than by experimenting with solubilizing agents such as the nonionic surfactants, including the Tweens, I don't know how you can make tincture of benzoin water soluble. Your supplier, however may be able to supply you with a synthetic composition that will have the same activity, but better solubility.

Irish Moss in Lotions: *Can you give us some basic information on the use of Irish Moss in sun tan lotions? As you know, this gum has been used extensively in hand lotions and has been recommended for its emollient and skin softening properties, so that it seems that it might be useful in sun tan lotions.* BOSTON.

Irish moss should be useful in sun tan lotions as an emulsion stabilizer and for its emollient and skin softening properties. Since emulsified sun tan lotions differ from usual hand lotions only in that they contain a sun screening agent, Irish moss should be added in the usual proportions, in the neighborhood of one to two per cent.

Skin Softening Cream: *Can you supply me with a formula for a semi-solid, ointment-like cream for use by pregnant women to soften abdominal skin and prevent "stretch" marks. Up to now we have been purchasing an emollient night cream, but wish to do our own manufacturing.* PHILADELPHIA.

The cream you desire should, if possible, improve the softness, flexibility and elasticity of the skin, perhaps even more than usual emollient creams are able to do. According to current theories of Blank, the softness and flexibility of the skin is related to its water content rather than to the action of emollients. If loss of water can be prevented, the skin will remain flexible and soft; restoration of water will improve the elasticity of the epidermis. On this basis, it seems to me that the emollient cream should contain a substantial proportion of water and a humectant, glycerin or sorbitol, to prevent too rapid absorption of water, along with customary non-aqueous emollient components.

Glyceryl monostearate	12.0
Stearic acid	2.0
Lanolin	2.0
Cetyl alcohol	0.5
Mineral oil	1.5
Preservative	0.1
Glycerin	15.0
Potassium hydroxide	0.2
Water	66.2
Perfume	0.5

The potassium hydroxide is dissolved in portion of the water, the other ingredients with the exception of the perfume are heated together to 70° C., the potassium hydroxide solution added and the mixture stirred until homogeneous. Add perfume below 45° C. Color may be added (from the list of certified colors) as desired.

Theatrical Grease Paint: *Can you assist us with indications as to the composition of theatrical grease paints?* MILWAUKEE.

Theatrical grease paints consist of pigments ground into a petrolatum-lanolin base. The colors are pigments based upon certified colors with the generous use of titanium dioxide to opacify and modify the shades. The mixture should be passed repeatedly through a roller mill for thorough mixing and to break up all color lumps.

Brilliantine: *We are making a brilliantine with mineral oil and lanolin. Would the addition of petrolatum improve the product?* SAN FRANCISCO.

The use of either a higher viscosity mineral oil or petrolatum would give your brilliantine more body and possibly better effectiveness in keeping hair in place. Petrolatum can be incorporated by gentle heat; the proportion to be used will depend upon the properties you wish.

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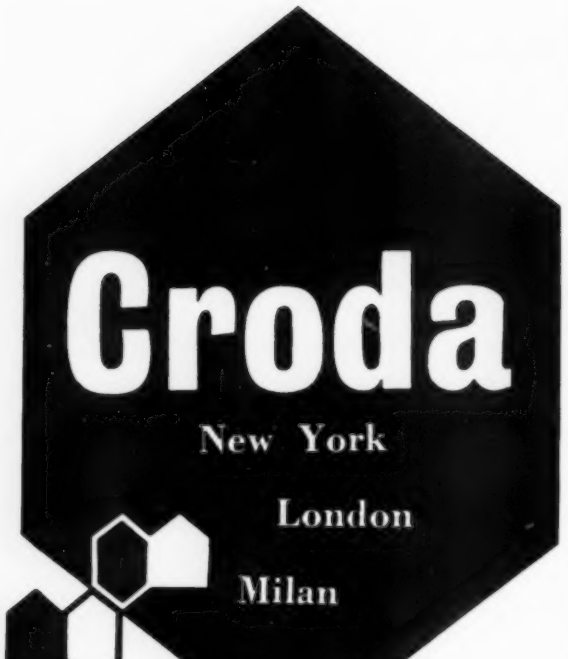

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(*Continued from page 609*)

naturally occurring material, but a new agent uncovered in a screening program, what might be the prediction of its activity in the human? (To satisfy your curiosity: the human uterus generally contracts with epinephrine when pregnant—like that of the cat—; but it usually shows a net relaxation in the non-pregnant state—like those of the rat and guinea pig!)

In the matter of toxicity itself the path is often beset by thorns. If conclusions had been drawn from guinea-pig work alone, penicillin might never have been given a trial—for it is a deadly poison to those laboratory animals. One of our own compounds, whose structure argued that it should be of rather low toxicity, was lethal at the low dose of 19 mgm/kgm (.0003 oz./lb. of body weight) in 50 per cent of mice by intraperitoneal injection. To confirm we tried it in their close evolutionary neighbors, the rats; here it was eight times as safe, not lethal in 50 per cent up to 160 mgm/kgm (.0024 oz./lb.). The dog was almost completely immune to its effect. Would man resemble mouse or dog?

The literature reports that a certain additive to food was found to be quite safe in rats, rabbits, or dogs. But in the cat, not frequently used in toxicity screening, it was extremely toxic. Furthermore, in the male cat it was much more toxic than in the female. Would man react as cat or rat? And what would be the sex difference in response?

In short, what complicates the problem for the pharmacologist is the knowledge, learned first hand the hard way in the laboratory, that sometimes what goes for one species may not for another; that what may be innocuous for three species may not be tolerated by the fourth; and even, sex being what it is, that what may be safe for the goose may be lethal for the gander. Such being the case, what are the chances for guessing what may occur in man?

This might not be so troubling a matter were it not for the fact that the investigator is seldom the administering clinician. Not only must the pharmacologist convince himself that a trial is safe and of value, but he must convince equally the physician who will undertake the first trials. In the last analysis, it may be the latter who may be taken to task if aught goes awry. And let us by no means forget the patient, who has a *vital* interest in these proceedings.

In the past, the information the clinician always received was a mass of laboratory reports describing the nature of the agent, the mechanism of its activity, its acute toxicity in several species by several routes of administration; chronic toxicity tests for perhaps six months in a similar manner; laboratory pathology results including weight changes, various blood values, microscopic tissue changes, metabolic and tissue values demonstrating disposition of the drug within the body. The doctor demanded evidence that the new compound achieved the required results and asked for a

safety in a high ratio of toxic dose to effective dose. If fortunate, he requested and received a suggestion for an antidote—before the first trials began. This list, however overbearing, is an abridged one; and the clinician may have suggested even further experimental tests to satisfy specific doubts.

When it did come to making a decision in the case of the drug with a valuable but inconsistent action, the pharmacologist was accustomed to resort to what he hoped was pure objective logic. First to be considered was the weight of evidence for beneficial value and the preponderance of good reactions. Second considerations were the consistency and magnitude of safe tolerance margins. Third was a delving into mechanism of action and reasoning from what was known of such mechanisms of activity in animal and man. As a fourth safeguard, all literature pertaining to human reactions to similar drugs was carefully scanned. And, frankly, sometimes a fifth—and subjective—part of the story was the pharmacologist's hunch that it should be good! If all these were satisfactory, it was given over to clinical testing.

Surely this is not the place to describe the careful and precise way in which the physician begins an investigation of the activity of these drugs on man. Suffice it to say that he proceeds with due caution and attention to the facts. Discourses upon the nature and philosophy of "first clinical trials" have recently appeared in several leading journals to guide him. Occasionally the new drugs may come to him through such an agency as the Therapeutic Trials Committee of the American Medical Association, which has reviewed all the evidence and advised a trial.

The urge to test these new things in man may even lead the investigator to try it upon himself. Such procedures are not without danger, of course, but survival may be followed by nomination to the Walter Reed Society, a group composed of individuals following the grand tradition of those who let mosquitoes feed upon them in the yellow-fever battle.

One further large bug-a-boo to the investigator is the unexpected "side-effect" which, frequently, no amount of laboratory work could be expected to have divulged. This was certainly the case with Chloromycetin which in a few cases was purported to have destroyed part of the blood cell generating system. Never was this tendency evident in the extensive laboratory animal work of others, and not even in our own, which was conducted after such clinical reports appeared. This has led Williams to describe the ups and down of pharmacologic and clinical research as a graphed curve of the following sort: a biphasic discontinuous function, having at its start the "crackpot idea," rising to a peaked eminence of proved clinical value, only to fall sharply to a nadir of "unexpected side reaction" and finally rising slowly upward upon the statement "to be used in selected cases." A similar graph of medical acceptance and use has been diagrammed by Jawetz.

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majority of pharmacologically active compounds do act the same in most mammals—including man. The wealth of efficient therapeutic agents used to ameliorate the functional troubles of man bear voluble witness to this. And lest this article add unwitting fuel to the fiery diatribes of the professional "anti-vivisectionists," let me hasten to set straight at least the record, if not those misguided zealots too. When the pharmacologist reaches his conclusion, it is usually based upon sound functional principles and planning. It is never a helter-skelter trying of things on animals, but rather a carefully organized program of progressive investigation. And at any time the investigator considers further work in a certain line unjustified, he ceases his endeavors along that path immediately.

As a matter of fact, this considerable area of agreement between species has given rise to what may be called a "new look" in screening potential drugs. In many laboratories today, when a new agent is found to give consistently interesting results from a pharmacodynamic viewpoint, a determination of therapeutic index—the ratio of toxic dose to effective dose—is quickly made in *several* species. If all looks well, it is tried in man in low, safe doses, to determine whether the suspected activity carries over to that species. If not, the item is usually dropped from the experimental agenda, and a good deal of experimental labor has been saved with no danger to the clinical subject. If, however, the activity is there in interesting degree, clinical tests are suspended while the agent is returned to the laboratory for the very intensive, complete work-up described in an earlier paragraph. Following this, full human trials are instituted.

This has saved the laboratory and the clinician a goodly amount of work in the past. Recently, one new agent which came to our attention produced a powerful, long-acting depression of blood pressure in several species. After assuring ourselves of its safety, it was submitted for a preliminary trial in the hypertensive human for whom it would have been quite a boon, if not a salvation. Chagrin was rife when it was found that low doses produced no pressure changes, and that moderate doses gave but the most evanescent reduction in blood pressure. If we went unhappily "back to the drawing boards" our feelings were tempered by the knowledge that a great deal of unnecessary work had been avoided (and by the hope that the next one would be a "lulu!").

Perhaps the writer has painted too worrisome and dark a picture to this point; if so, it does not truly mirror his beliefs. There are rewards in medical research beyond recompense. These come when the clinician reports that a high blood pressure has been reduced safely, a pain ameliorated, an epileptic seizure prevented, a disease cured. Indeed, generally, the doctor is anxious to give trial to new therapies: he needs them, his patients need them. He asks only to be convinced of the value and safety of the new agent. It is the pharmacologists' task to provide the structure

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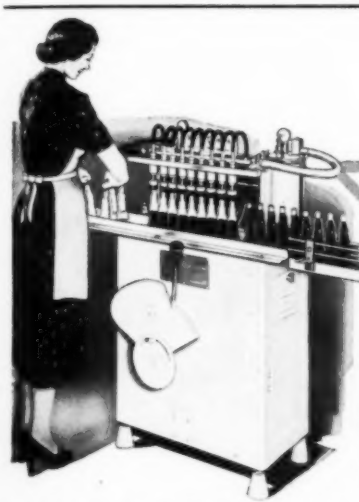

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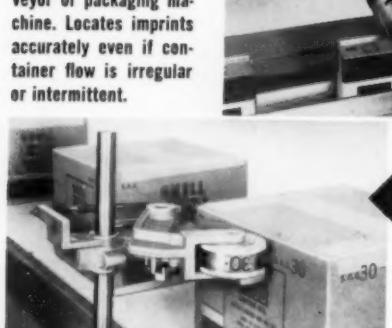
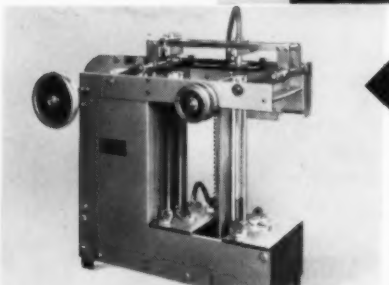


Side-Coder . . . imprints side surfaces of folding cartons, set-up boxes, rectangular cans and canisters. Can be used to imprint codes, product identification, etc. simultaneously. Fully automatic, adapts to any mechanized production-line.

Bottom-Coder . . . portable, space-saving unit that imprints codes on bottom of jars, bottles, cans, etc. Imprint surface may be flat or concave, flush or recessed. Wheels right up to the line, can be moved about at will.



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REFERENCES

Krantz, J. C. and Carr, C. J. The Pharmacologic Principles of Medical Practice. Williams and Wilkins, Baltimore, 3rd Ed. 1954.
Williams, R. H. The Clinical Investigator and His Role. Journal of the American Medical Association, 156:127, 1954.
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A.P.M.A MEETING

(Continued from page 614)

will be guided by an executive committee which will be made up of representatives of each of the contributing associations. Then there will be two associated committees, one composed of public relations experts from the participating groups, and one from the trade press. Beside Mr. Shaw, in addition to the members of the staff, there will be W. Moscrip Miller, account executive for the Institute's public relations counsel, Affiliated Public Relations.

The program of the Institute, said Mr. Shaw, is "designed along practical lines throughout, and is based on a public attitude survey conducted by the Health Information Foundation. The survey study revealed that, though there was some sharp and pointed criticism of the drug industry, a minimum of criticism was directed at the drug manufacturers by name. Rather, fingers were pointed at the retail druggist, the doctor, hospital costs, and those phases of medical care and health services with which the public is generally familiar."

"We are starting with the premise that every member of this team has a tremendous story to tell, and that's where we are starting—with news," said Mr. Shaw. "One by one we will take up other projects later, as time and money and facilities permit, but news should be our No. 1 objective for the moment—stories dramatizing the high achievements in the field of health, ranging from contributions to our longer life span to the fact that many of the diseases that have scourged mankind since the dawn of time have been obliterated or brought under control. It will be real news, not just space filler material. It will be brightly written but not sensationalized."

Another important step taken by the APMA was the proposal—adopted by the Association—that a combined APMA-ADMA legislative committee be created. Said President Kenneth F. Valentine of this proposal:

"The need for this is obvious to all of you. It is well known that many of our industry problems arise in the legislative branch of our Federal, state and local governments. This has been true in the past and, in my opinion, will be more true in the future. Up until this time we have had two legislative or legal groups speaking for our industry and many times we have not presented a united front, much to our detriment. In fact we have had occasions when the same lawyer, representing the same company on two different associations committees, has taken two widely op-

posed stands on the same question. This is not the individual's fault. Rather the fault lies in not consolidating an industry front or viewpoint on important legislative matters. Obviously it results in a divided front, confusion, and ineffectiveness.

"Such a proposal for a combined legislative section is not without precedent. For 32 years the combined contact committee representing the ADMA and APMA has done an outstanding job in working out industry problems with the Food and Drug Administration. This combined group has better served our government than either group could have done alone. They have accomplished much and in their combined status have presented a united front for our industry."

At the conclusion of the meeting, President-Elect Dr. Robert K. Cutter, president of Cutter Laboratories, was installed as president of the APMA.

Francis C. Brown, president of Schering Corporation, was elected president-elect of the Association. John H. Tooly, of E. R. Squibb & Sons Division, Olin-Mathieson Chemical Corporation, was elected Eastern vice-president; D. Mead Johnson, of Mead Johnson & Company, was elected central vice-president; Jack H. Boyle, of Boyle & Company, was re-elected Western vice-president; S. B. Penick Jr., president of S. B. Penick & Co., was reelected treasurer; Dr. John O'Neill Closs was reappointed executive vice-president; Charles Wesley Dunn was reappointed general counsel; and Frank T. Dierson was reappointed associate counsel.

Mr. Valentine was elected to a three-year term on the board of directors. Other board members chosen to serve three years are: H. W. Blades, of Wyeth Laboratories; John T. Connor, president of Merck & Co.; Lyman Duncan, of Lederle Laboratories; and Thomas J. Eaton, of Eaton Laboratories. Elected for one-year terms were: William B. Baxter, of Baxter Laboratories; and Jack Schopflin, of E. S. Miller Laboratories.

A LIFE ASSURANCE POLICY FOR FLAVORS

(Continued from page 617)

the oil should be stored in amber glass containers. Fill containers to neck and store as described for peppermint oil.

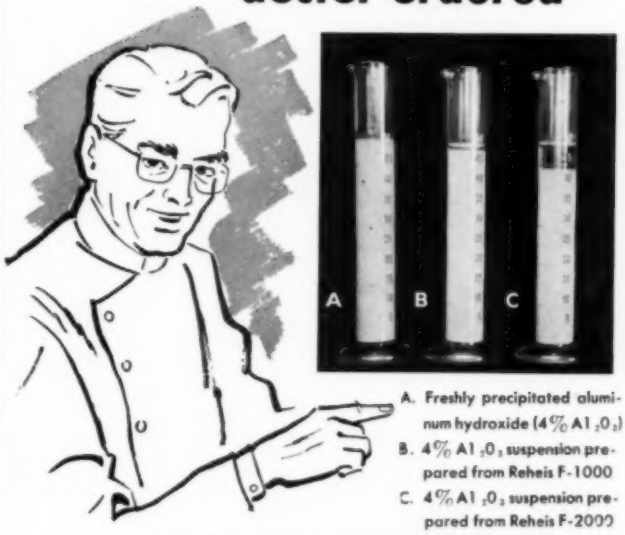
Oil Sweet Birch—These flavorants possess a high ester content and the

Oil of Wintergreen esters revert in time to the corresponding alcohols and acids. In order to decelerate deterioration, proper storage in heavily tinned metal or glass containers is essential. Temperature and fill requirements are the same as peppermint.

Oil Anise—This oil comprises in large part the phenol ether, anethol which is relatively stable. The oil may be kept safely in heavily tinned containers or amber glass bottles and stored at 70° F.

Citrus Oils—This group embraces very important

just what the doctor ordered



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by
JOHN HARDER, WRITER

There is a vivacious gentleman of seventy-two years who's getting a big kick out of life these days . . . by name . . . "Viv" (for Vivian) Bruce. A sturdier man of Scotch ancestry never walked the face of the earth! "Viv", as he is known throughout the trade, is Field Service Manager of Knox Glass, Inc.; You might say he's "Field Idea Manager". It is his job (and he loves his work) to visit customers who purchase glass containers from Knox. Everyone's glad to see "Viv" come into their plant, because he usually imparts some helpful bit of information which will make that customer's packaging operation more efficient; less expensive.

One day, he's showing a brewer in Cincinnati a production line trick to improve production line operations; the next, he's assisting a food packer in Virginia with a closure problem. For over 25 years Mr. Bruce has been serving Knox Glass customers all over the country. Now, "Viv" doesn't *have* to do all this traveling - but it's in his blood to be helpful . . . he knows what he's talking about . . . he's in demand.

If you see "Viv" Bruce before we do, tell him to slow down, just a little! May we add: Viva! Bruce!

K

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flavorants among which are lemon, orange, lime and grapefruit.

All these oils contain appreciable amounts of terpenes which as unsaturated hydrocarbons have a high affinity for aerial oxygen. They are for that reason extremely perishable and must be kept in well-filled, tightly stoppered containers. Avoid subjecting the oils to heat and direct sunlight, or bright natural light.

The turpentine-like odor and flavor which develops after citrus oil oxidation is often readily detectable in the finished product. All citrus oils deteriorate in time and therefore it is difficult to correlate oil quality with keeping quality. However, it has been the writer's experience after considerable study of lemon oils, both natural and synthetic, that there is a tendency for the better grades of oil to withstand deterioration longer than the cheaper grades. In general the fresher the oil, the fresher are the terpenes and the better the keeping quality.

A simple means for the evaluation of relative keeping quality of natural and synthetic citrus oils has been utilized for screening a considerable number of samples from various suppliers.

The test comprises the addition of 1 ml. of oil to 20 grams of anhydrous dextrose. The oil is uniformly distributed throughout the powder, placed in two ounce wide mouth, clear glass bottles and capped. A considerable airspace will be noted as a result of the disproportionate volume of powder. The test bottles are stored in an illuminated (100 watt clear glass bulb) incubator at a constant temperature of 20° C. The contents are examined organoleptically each week until deterioration is noted.

In this manner, a substantial number of competitive samples can be screened and evaluated simultaneously. Terebinthinate odors have been detected as early as one week which was sufficient cause for rejection on a basis of poor keeping quality. In contrast, fresh oils have stood up for as long as three months.

This simple test provides a yardstick by which relative keeping quality may be observed under controlled conditions. The behavior of a large group of flavors under these conditions will supply valuable information which can be utilized as a basis for predicting storage behavior. The justification of this test is that it sometimes is difficult even for the trained nose to determine incipient deterioration in citrus oils and when it is detected, deterioration has so far advanced (which does not need to be very much as far as citrus oils are concerned) that the oil is worthless for flavoring purposes. By accelerating deterioration, it can be learned which oils stand up best under the conditions imposed. Fresh, top quality oils generally stand up best. Partly deteriorated oils autocatalyze rapidly, regardless of initial quality and the flavor defect can be detected readily by this test.

As a general routine, all perishable oils should be stored well filled, in clean, dark amber, tightly stop-

pered bottles. After use, the bottles should be scrubbed clean with a good detergent and then rinsed and dried thoroughly. Bottles with plastic screw caps containing aluminum liners are recommended. Cap liners must be replaced with fresh aluminum inserts after use. It is advisable to employ the same bottles for the same flavor type. The use of clear glass bottles for flavor storage is a dangerous practice.

Subdivide bulk oil shipments as soon as possible into smaller containers, the latter approximating batch size quantities. Heavy galvanized or stainless steel drums may be utilized for prolonged bulk storage so long as no appreciable withdrawal is made (resulting in increased headspace). Once a withdrawal is made, the drum should be emptied into dark amber bottles as soon as possible. A systematic procedure for rack storage of all bottles will prove convenient.

For further systematization, it is suggested that each bottle be wired tagged and bear the following information:

1. Type of flavor
2. Lot number
3. Date of receipt
4. Net weight
5. Supplier

Direct sunlight must be excluded from oil storage rooms. Sunlight exerts a catalytic action on essential oils. If traces of moisture or metals are present in the oil very rapid deterioration after exposure occurs. The oils should be stored at a temperature of 70° F ±2°. Avoid placing oils near steam pipes or heating units. An important fact is that a constant temperature is as vital as the correct temperature, since variations in temperature accelerate oil deterioration.

All utensils in contact with essential oil at any time during handling should be carefully examined as possible sources of metallic contamination, particularly copper and iron. Glass, heavily tinned or stainless steel utensils are recommended for this purpose.

Careful supervision of the flavor room is essential to assure proper filling, storage, weighing, dispensing and batch mixing. Cleanliness and neatness are essential to flavor handling and should be applied to every phase of the operation.

Good oils will for the most part remain as such for protracted periods if stored and handled as suggested. An oil, once partially deteriorated continues to do so, even under idyllic storage conditions.

DISPOSABLE PROFESSIONAL TIME

(Continued from page 624)

each have our individual problems concerned without-thinking and out-maneuvring competition. The question is—have we unthinkingly outwitted ourselves by resorting to sheer bulk of communications in place of the more arduous creative process of developing methods to reduce the saturation quotient?

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Zinc oxide is widely used in dermatology in the form of zinc oxide ointment and calamine lotion.

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* *The Dispensatory of the United States of America, 1950 Edition*

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approaching uncomfortably close to saturation point in total communications efforts, and in certain channels we may have gone beyond this point at least as far as many physicians are concerned. Recall, if you will, the disturbing percentages of our prospects who do *not* see detail men or who do *not* read advertising. They have escaped the pressure by cutting all connections—removing themselves completely from exposure to this high volume.

COSMETICS 1955

(*Continued from page 613*)

East South Central	
Kentucky	0.71
Tennessee	1.32
Alabama	0.90
Mississippi	0.51
	3.44
West North Central	
Minnesota	1.71
Iowa	1.05
Missouri	3.0
North Dakota	0.22
South Dakota	0.22
Nebraska	0.68
Kansas	0.91
	7.79
West South Central	
Arkansas	0.61
Louisiana	1.13
Oklahoma	1.26
Texas	4.20
	7.20
Mountain	
Montana	0.24
Idaho	0.39
Wyoming	0.14
Colorado	0.99
New Mexico	0.28
Arizona	0.36
Utah	0.39
Nevada	0.13
	2.92
Pacific	
Washington	1.58
Oregon	1.14
California	10.80
	13.52
Territories	
Alaska	0.05
Hawaii	0.38
	0.43

These figures cannot be taken as a true index of the

percentages of the country's total cosmetic volume sold in these various states or areas. The reason for this is that not all taxes are paid to the Internal Revenue Service in the states or areas in which the goods are sold and in which taxes are collected by the retail sales people. In many instances, the outlets through which the goods are sold are owned by corporations resident in state or districts and all these taxes collected are reported in the state or area in which they are paid to the Internal Revenue Service. We all know that chain stores of all types—drug, variety, food and department stores—are now more widespread than ever throughout the country. Also mail order and house-to-house selling is on the increase. Taxes on sales by all of these types of outlets of cosmetics and toiletries are paid in the tax collection districts in which the main offices of the companies are located.

If the Department of Commerce was anxious to supply the nation's business men with much more accurate data on the sales of cosmetics and toilet goods in the various states and areas throughout the country, it might be possible to get the cooperation of the Treasury Department to obtain a breakdown in tax reports which could be consolidated by the Department of Commerce to give business men what they would like to know. However, perhaps this is too much to ask of the present administration even though it is friendly to business.

There exists in this country a female cosmetic and toilet goods market of approximately 55 million women. The approximate average percentage of use of various preparations among these women is:

Shampoos	64 per cent
Hand Lotions and Creams	62 per cent
Hair Spray	21 per cent
Nail Enamel	16 per cent
Lipstick	83 per cent
Face Cream	66 per cent
Deodorants	82 per cent
Perfume	32 per cent
Cologne	64 per cent
Face Powder	82 per cent

Of the taxable cosmetics sold in 1955, a breakdown would give the approximate following sales volumes in millions of dollars:

Face Creams, 102; Deodorants, 65; Lipsticks, 63; Toilet Water and Cologne, 55; Hair Tonics, 52; Compacts, 50; Make-Up Bases, 47; Hand Creams and Hand Lotion, 42; Nail Enamel and Removers, 36; After-Shave, 31; Brilliantine, pomade, straightener, lacquer, 30; Perfume, 30; Hair Fixative Spray, 28; Face Powder, 26; Talcum and Body Powder, 26; Face Lotion and Astringent, 21; Hair Rinses and Dyes, 16; Bath Salts and Oils, 12; Eye Cosmetics, 8; Rouge, 7; Depilatories, 6; Waveset, 5.

Of the major classifications of non-taxable cosmetics, the approximate sales volumes for 1955 in millions of

(Continued on page 704)

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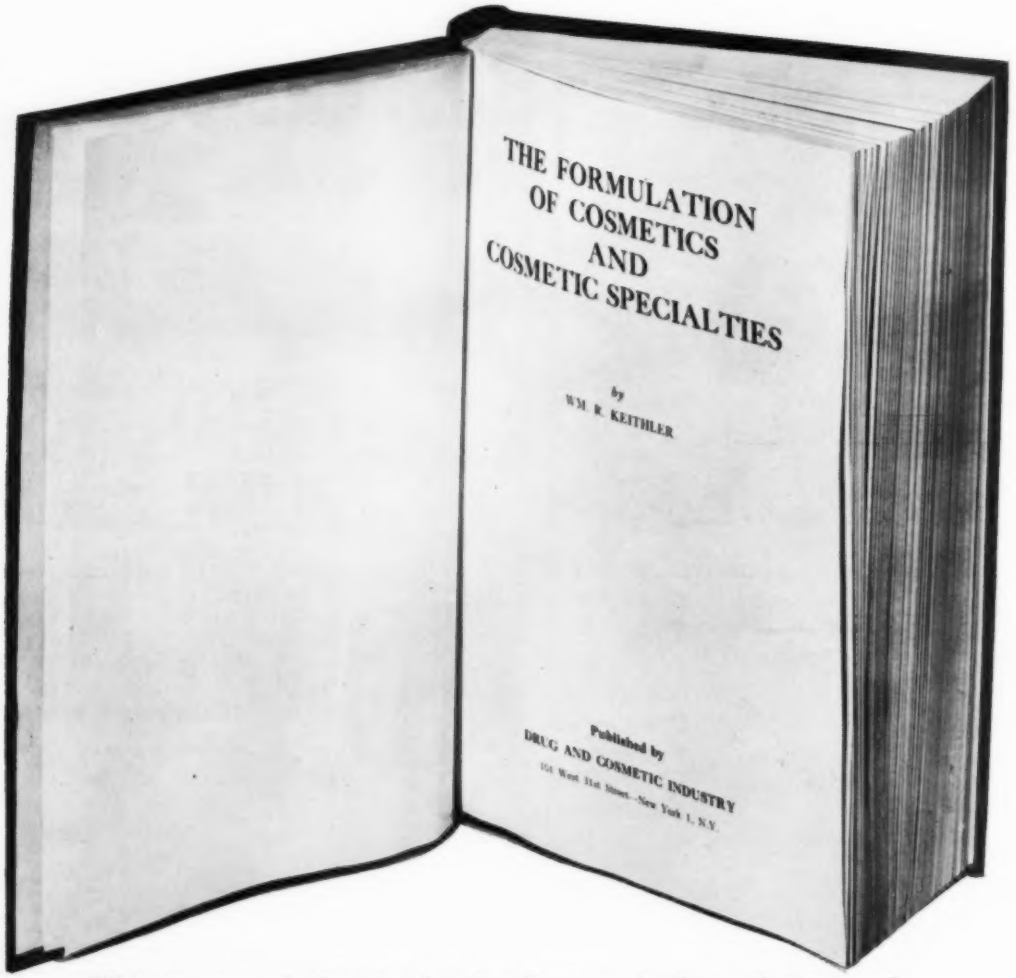

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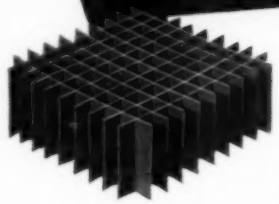

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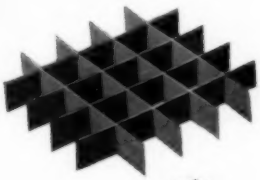
- Save time in packing.
- Assembled, ready for use.



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(*Continued from page 701*)

dollars are: Dentifrices, 160; Shampoos, 128; and Shaving Creams and Sticks, 67.

PERFUME, COSMETIC & TOILET PREPARATIONS SALES AT RETAIL AS ESTIMATED BY T.G.A. (Figures do not include toilet soaps)

YEAR	Sales in Millions of Dollars	YEAR	Sales in Millions of Dollars
1914	39.8	1935	322.1
1915	45.0	1936	336.5
1916	71.5	1937	374.0
1917	95.4	1938	412.3
1918	103.7	1939	425.1
1919	116.5	1940	449.9
1920	129.5	1941	463.6
1921	126.0	1942	481.4
1922	147.3	1943	507.5
1923	194.6	1944	593.0
1924	220.3	1945	711.3
1925	256.4	1946	758.2
1926	300.2	1947	743.8
1927	329.7	1948	749.8
1928	355.2	1949	770.8
1929	378.4	1950	840.1
1930	336.2	1951	912.8
1931	297.1	1952	1,004.0
1932	288.4	1953	1,020.8
1933	300.3	1954	1,086.8
1934	324.4	1955	1,192.2

SALES THROUGH THE VARIOUS TYPES OF OUTLETS SINCE 1950*

	Chain & Independent Drug Stores	Dept. Stores & Specialty Shops	Food Stores	House-to-House	Ltd. Price Variety Stores	All Other Outlets
1950	37.0%	27.0%	6.1%	14.0%	11.0%	4.9%
1951	36.0%	25.5%	8.5%	16.2%	10.0%	3.8%
1952	34.5%	22.0%	14.0%	17.5%	8.5%	3.5%
1953	32.0%	22.1%	15.5%	18.3%	8.4%	3.7%
1954	30.2%	22.5%	17.1%	19.4%	7.5%	3.3%
1955	29.4%	22.3%	17.9%	20.0%	7.3%	3.1%

*The Toilet Goods Association, Inc.

PATENT THOUGHTS AND TRENDS

(*Continued from page 651*)

the saponification reaction can be carried out in a continuous manner without special precaution.

RECENT PATENTS

2,734,802—**K. P. Closs—Detection of Pathological Quantities of Protein in the Urine.**

2,734,844—**Am. Cyanamid—Injectable Penicillin Repository Preparation Containing Oil and Gelled Oil.**

2,734,845-6—**Schenley—Aqueous Suspension of Procaine Penicillin and Salts of Anti-histamine.**

2,734,847—**Carter Products—Perspiration Inhibiting Composition.**

2,734,870—**Calif. Research Corp. — Non - Soap Synthetic Detergent Bar.**

2,734,896—**B. T. Sokoloff—Extracting Vitamin P from Citrus Molasses.**

2,734,897—**Merck—$\triangle^7$ - 7 - Acyloxy - 9, 11 - Epoxy-Steroids.**

2,734,899—**Imperial Chem. Ind.—Manufacture of Brominated Steroid Compounds.**

2,734,902—**Hartford Nat. Bank and Trust Co.—Stable Aqueous Solution of Vitamin B_1.**

2,734,904—**G. D. Searle—Acyl Guanidines.**

2,734,905—**Merck (Germany)—Pyridine - 4 - Carboxylic Acid Hydrazides.**

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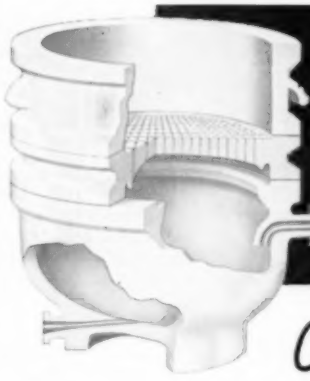

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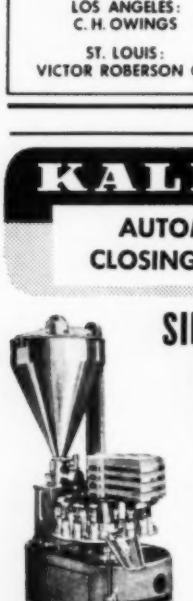

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2,734,907—Upjohn—Production of Δ^4-3-Keto-Pregnenes.

2,734,918—May & Baker (England)—Quat. Salts of Chlorphenoxy Methylamines.

2,734,919—Les Labs. Fr. de Chimiotherapie—Resolving DL - Threo - 1 - (p - Nitrophenyl) - 2-Amino Propane-1, 3-Diol.

2,734,920—Sterling Drug—Anthracenes.

2,735,799 } —H. A. Abramson — Epinephrine
2,735,854 } Ointment.

2,735,800—Upjohn—Steroids.

2,735,847—U. of Mich. — Polymethyleneimino-ethyl Esters of Diphenylacetic and Benzilic Acids.

2,735,848—Parke, Davis—Amine Salts of Penicillin G.

2,735,852—R. M. Herbst—Substituted Tetrazolines.

2,735,855—Am. Syntex—Producing Δ^4-Pregnen-11α, 21-Diol-3, 20-Diones.

2,735,856—Upjohn—21 - Hydroxy - 4, 17(20) - Pregnadiene-3, 11-Dione.

2,735,867—Burroughs Wellcome — 6 - Ethyl-methylamino-5-Methyl-4, 4-Diphenyl-Hexan-3 One.

2,736,681—Merck — Compositions Cont'g 9α - fluoro 4-pregnen-11β, 17α, 21-triol-3, 20-dione 21-t-butylacetate.

2,736,682—V. M. Hermelin—Making a Prolonged Action Medicinal Tablet.

2,736,683—Colgate—Aluminum Sulfamate Antiperspirant Liquid.

2,736,725—Am. Cyanamid—Complexes of Tetracycline Antibiotics.

2,736,727—J.M.R.A. Delourme-Houde (France)—Amino-Ether Medicinals.

2,736,732—Monsanto—3, 11-Diketo-17-Aldehyde-$\Delta^{4,16}$-Androstadiene.

2,736,733—Merck — Hydrocortisone Tertiary - Butylacetate.

2,736,734—Merck—$\Delta^{1,4}$-3, 20-Diketo-11-Oxygenated-17, 21-Dihydroxy-Pregnadiene 21-Tertiary Butyl Acetates.

2,736,735—Am. Cyanamid—Tetracycline Antibiotic Zirconium Hydroxy-acid Complexes.

2,736,745—Monsanto—Esters and Acetals of 16, 17 - Dihydroxycylcohexanophenanthren - 3 -One Derivatives Substituted at 9, 11 Positions.

2,736,746-7—Hoffmann-La Roche—Amines.

2,736,748—Boots Pure Drug (England)—N - (2^1 - Naphthyl) Amidinoalkanes.

2,737,501—Cambridge Chemical Products—Diagnostic Preparation for the Determination of Serum Bilirubin

2,737,512—Am. Cyanamid—11β-Hydroxy-3, 20-Di-Ketal Pregnenes Process.

2,737,514-5—Am. Cyanamid — Salts of Substituted Pteridines.

2,737,518—Schering— 1 - Hydroxycortisone, 1 -

Hydroxyhydrocortisone and Esters.

2,737,523-4—Upjohn—N - (3 - Halo - 2 - Hydroxypropyl)-p-Aminobenzoates and a-(3-Hydroxy-2-Ketopropyl)-p-Aminobenzoates.

2,738,300—Smith, Kline & French Labs.—Stable Aqueous Penicillin Preparation.

2,738,301-2—Merck—Vitamin Bff Analogs.

2,738,303—Smith, Kline & French Labs.—Sympathomimetric Preparation.

2,738,347—Olin Mathieson—Penicillin Salt of Benzhydryl-Phenethylamine.

2,738,348—G. D. Searle — 6, 7 - Epoxy - 3 - Ketosteroids.

2,738,350—G. D. Searle—3-Oxygenated 17α-AZA-D-Homoandrostenes.

2,738,351—Bristol Labs.—Substituted Glycerol Ethers.

2,738,352—Chas. Pfizer—Purification of Pyridines.

2,738,363—Parke, Davis—Production of α-β Diaminopropionic Acid Esters.

2,738,365—Colgate—Process of Producing a Synthetic Detergent of Good Color.

2,739,033—Du Pont — Treatment of Reduced Keratinous Materials with α, α'-Dihalodicarboxylic Acid.

2,739,097—Norwich Pharmacal—Composition for the Treatment of Demodectic Mange.

2,739,098—Merck—Procaine Penicillin.

2,739,099—Armour — Treating Adrenocorticotrophic Hormones.

2,739,100—Am. Cyanamid—Extraction of Vitamin B_{12} from Aqueous Concentrates.

2,739,152—G. D. Searle — Dialkyldiaminoalkyl Esters of Diarylisonicotinic Acids.

2,739,157—Merck—Racemization of α-Hydroxy-β, β-Dimethyl-Gamma-Butyrolactone.

2,739,162—Merck — Hydrogenation of Chloropregnenes.

2,739,167—Merck—Stabilized, Oil-Soluble Vitamins.

2,739,924—Bristol Labs.—Tetracycline Production.

2,739,962—Commercial Solvents—Production of Crystalline Procaine Penicillin.

2,739,966-7—Am. Cyanamid — Formyldihydropteroic Acids.

2,739,968-9—Schering—Substituted Piperidines.

2,739,974—G. D. Searle—Preparing $\Delta^{4,6}$-3-Ketosteroids.

2,740,745—Merck—Prepn. of Arylacetylcarbinols.

2,740,775—Hoffmann-La Roche—Prepn. of Riboflavin-5'-Monophosphoric Acid Ester.

2,740,777O—. Home Products—Process for 4-Carb-Lower Alkoxy-3-Methyl-4-Phenyl-N-Lower Alkylazacycloheptanes.

Court Cases

U. S. 2,120,667—B. Gruskin, Therapeutic agent for use in the treatment of infection, Rystan v.

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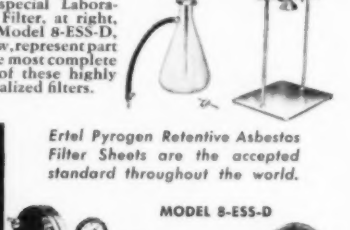

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V. & S. Morch, 4796 Victoria Ave., Montreal 29, Que.

Purepac. Stipulation of dismissal, Feb. 7, 1956, New York.

U. S. 2,319,481 / *U. S. 2,416,234* — **W. B. Stillman et al., Antiseptic and nitrofurans, Norwich Pharmacal v. Dr. A. C. Daniels, Inc., filed Feb. 2, 1956, Boston.**

U. S. 2,732,327—**W. K. Teller, Anti-perspirant stick, Pharma-Craft v. 5-Day Laboratories, filed Jan. 26, 1956, Chicago; Pharma-Craft v. Coty, Inc., filed Feb. 17, 1956, Chicago; and Pharma-Craft v. R. H. Macy et al., Feb. 16, 1956 (Atlanta).**

U. S. 2,736,323—**E. G. McDonough, Permanent waving solution and method, Tidewater Patent Development Co. v. Rex Beauty Supply Co.; and T.P. D. Co. v. Peoples Service Drug Stores, Inc., et al., filed Feb. 28, 1956, Norfolk, Va.**

THE NITROFURANS

(Continued from page 619)

resistance to it. It is now available in a white vanishing cream base for human use.

Tricofuron Suppositories and Powder, the newest nitrofuran products, are effective against the trichomonal parasite, a common cause of vaginitis, but do not cause any unfavorable reactions in the vaginal tissues. The active ingredient, Furoxone, brand of furazolidone: N-(*5-nitro-2-furfurylidene*)-*3-amino-2-oxazolidone*, has been employed in veterinary medicine for some time, especially in poultry diseases such as fowl typhoid, pullorum and paratyphoids and in turkey blackhead.

The possibilities of the furan chemicals in medicine, however, have only begun to be realized. As they have been doing for the past seventeen years, Eaton scientists continue to develop and screen new nitrofuran compounds. Many compounds possess properties that promise much. Some are anesthetics. Others are antihistaminic and some of these drugs have some effect on certain types of cancer cells. Further, as organisms sensitive to the antibiotics are eliminated and insensitive organisms, particularly those of the gram-negative variety, increase in frequency, a wide-spectrum chemotherapeutic agent that operates with minimum toxic effect and without regard to resistance to the antibiotics, will become more and more essential. Such an agent can well be a nitrofuran molecule.

Lilly Sets Up Agricultural Research

Eli Lilly and Company has announced a $3 million expansion in agricultural research. Lilly will construct an agricultural research center to be located on 417 acres at Greenfield, Indiana, present site of the Lilly Biological Laboratories. Construction will begin by midsummer, says T. P. Carney, Ph.D., Lilly vice-president in charge of research, development, and

control. One to two years will be required to complete the dozen building units.

Dolcin Charged with Contempt

The Federal Trade Commission petitioned the U.S. Court of Appeals in Washington last month to punish Dolcin Corporation for "flagrant" violations of a court decree handed down in 1955 and forbidding false advertising of Dolcin. The petition, signed by FTC assistant general counsel Robert B. Dawkins, charged that Dolcin president Victor Der Linde, and other officers, George Shimmerlik and Albert T. Wantz, had caused to be disseminated radio advertising of Dolcin which constituted "open, wilful, deliberate, repeated and continuing" defiance of the court order which upheld in large part a 1952 cease and desist order against the corporation and its officers. With the petition were copies of radio advertisement scripts containing statements for therapeutic effectiveness, safety, and relative low cost of Dolcin, which statements the Commission claims are false.

Correction:

In our March 1956 issue, in an article headed "Evyan Imitation" on page 339, it was stated that the name of the perfume marketed by Yvonne, Inc., was called "White Shoulders." This was in error, the imitation having been called "White Showers."

PRODUCT CONTROL

(*Continued from page 621*)

study should produce enough data of the proper kind that the risk of the product showing gross instability in a short time on the market, say three months, would be cheerfully underwritten by the local bank. Three months scarcely allows time for initial distribution! Yet, products still come into the market showing instability of that order. How much do you think it costs to take them back and start over. Costs of this type are often treated as intangibles by management. They are not easily calculated, so they are disregarded. But a Sales Promotion Program may have been started. Clinical tests may have been snarled. The unstable material must be withdrawn from the market and perhaps dumped. What about loss of sales throughout this period, or isn't that an item of cost?

The Control man should be given sizable responsibility *and* the authority commensurate with that responsibility. He should not be overruled except when absolutely necessary; and when *you* overrule him, *you* take the responsibility, *please*. If your Control man lives up to the reputation often assigned to him by the unthinking, namely, that he does not exercise good judgment, remember this: There are only two possibilities, namely, management didn't exercise good judgment in its evaluation of the Control decisions or management didn't exercise good judgment when it picked the Control man.

A poorly organized and inefficient Control Department is almost as bad as none at all; but a good one should be taken into partnership, and not just with

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the Development Laboratory, but with management. Not only will it save operational expense directly in dollars but it will prevent those mistakes and wastes of funds through error and oversight which are the bane of the treasury in this day of intense competition. But that isn't all—a sound Control group, properly oriented is next in importance to Development itself in planning a new product since such a group will see that Development develops well and that a product results which may be relied upon at least as to its being what it is supposed to be, and that for a reasonable period it will stay that way.

HIGH SPEED PHARMACEUTICAL MACHINERY

(Continued from page 623)

From this example, I am sure that you can see that much of the key to lower production costs lies with the users of pharmaceutical equipment themselves. I might add right now that we know of companies who are getting more output from our machines than we ever dreamed of. In some cases, we don't know how they are doing it. Certainly if a company assigns a team to a machine, and this team comes up with design improvements, the company is entitled to keep these improvements to themselves. The expense involved in the team program can and should be offset by some sort of competitive edge.

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speeds? Is it the machines, the materials or the processes? To find an answer to this problem, let's take a tablet press as an example. We have found that the main obstacle to attaining higher operating speeds on a machine of this type is the granulation. Here is one spot where more research by the pharmaceutical companies is badly needed. There is not enough available data on granulation properties to enable the tablet press manufacturers to intelligently predict production output of their equipment in advance of the tryout stage, which often times is carried out in the user's plant.

In January, I was told by a large custom packaging company that it had been necessary for them to change their granulations so that they could get the maximum production on one of our high speed machines. The old method of granulating and the materials used in the granulation had become outmoded with the use of high speed equipment.

Fortunately there are a wide variety of alterations that can be made in tablet presses to improve their performance and operate at higher speeds with particular granulations. Items that can be altered include cams, feed frames, motors and drives, punch design and such additional features as fog lubrication and exhaust systems.

For example, one manufacturer is making saccharine tablets at the rate of 5,200 tablets per minute with special tooling on a tablet press of conventional design. Fluted bearing surfaces on punches on a press of another company provided a wiping action that

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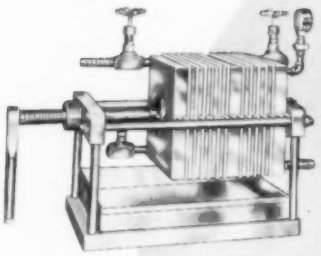

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avoided punch clogging. In another case specially shaped cams solved tablet press production problems of an anti-acid tablet. Three-point mounting of feed frames on tablet presses avoids table rubbing, scoring and contamination. In another plant an exhaust system was added to a tablet press to solve clogging and wear problems caused by dust collecting on moving parts.

We recommended the testing of vacuum systems before they are installed. Most central systems are not the right answer for all pieces of equipment. The use of a single system with adjustments for the various products to see how much volume is needed is probably the only true way of knowing whether your vacuum system is correct. Special tooling such as tapered dies provides required venting properties that permit successful tablet press production with certain granulations.

In the filling field, the great demand by the pharmaceutical industry has been for more filling accuracy at higher speeds. Today formulations of pharmaceuticals are so valuable that the saving of a few drops by accurate filling more than offsets the cost of additional specialized new equipment. This is a problem that had to be solved by the designer and builder of the equipment. New liquid filling machines are now being put on the market which have provided filling accuracy within less than one per cent. This is being achieved at no sacrifice in the speed of the filling operation.

Actually the manufacturer of equipment for the pharmaceutical industry is constantly developing new equipment to meet the needs pointed out to them. There are new tablet coaters and polishers having built-in fluid drives that cut starting and stopping shock loads. There are drying ovens of increased capacity. Granulators are now available with greater flexibility, having selective rotary or oscillating actions. Mixers and flakers are also being consistently improved.

A fair question for you to ask here today might be how the pharmaceutical manufacturers could get better machinery in their plants. I want to go into this in some detail as some companies have evolved a system that will insure that better machinery is provided in accordance with the performance requirements of the user.

As I stated before, organizations like the Arthur Colton Company are in business to build machines. They are set up to do this on a basis in which their profit is derived from the building and delivery of machinery. We have no fixed designs as such since we have found from experience that the maximum benefits from automation and high speed cannot be consistently achieved from fixed designs within a set line of machinery.

Thus we build machinery to meet the specific needs of the operation which it is to perform. To do the best possible job, we need the cooperation from the user during the machine design and development program. Today I am going to tell you about the

Colton Machine Development Program which we believe will achieve maximum benefits for the pharmaceutical industry and at the same time simplify the problem of producing products at minimum cost.

Under this program, our company engineers and develops a specific machine design and build and deliver a machine to specifications for a fixed quoted price. Under this arrangement, the buyer of the machine actually buys both engineering and building time and materials.

We have found time and again from experience that the highest production pharmaceutical machines are special designs, and that the best is never achieved with standard designs. For that reason, there is a large amount of design time put in on each machine—design time that will probably never be recouped by our company since another machine like it may never be built. Again, as a builder of machinery, we make our profit on machine building, not engineering. Thus for minimum cost, the equipment user obtains an inexpensive machine and research and design program, carried out by experienced engineers, who work closely with the pharmaceutical company engineers in developing exactly what the company wants. Our company has evolved a plan whereby a proposal with a firm price can be given for the design and building of any special equipment. We hope that more manufacturers in the pharmaceutical field will take advantage of a program of this type which will assure that the machinery they buy is engineered to meet a specific need.

If there is one way that the pharmaceutical industry can help cut costs substantially, it is the installation of more sound amortization programs designed to stimulate the purchase of new and improved specialized equipment. In most cases, machinery bought over ten years ago can be outproduced to the extent that production can be doubled by the purchase of new equipment on the market today. Old, slow machines do not make money; they only waste it. We have demonstrated time and again over the past seven years that the higher cost of precision machines is quickly paid for in better performance and higher outputs. Specially developed machines and features are usually the key to lower cost.

I have spoken quite frankly to you here today. Most of the points I have emphasized are being carried out by many manufacturers of pharmaceuticals. The willingness of your industry to buy new ideas and machines during the past seven years that I know about is conclusive proof of the forward-looking attitude of sound managements.

No doubt most of you are familiar with the decadence into which the textile industry once degenerated as a result of a consistent lack of interest in improving its machinery and equipment. In the years ahead, when man is going to benefit more and more from the use of pharmaceutical products in his every day living, we must provide production lines that will give these miracle products to the masses at lower cost.

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